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COLONEL WILLIAM C. GREENE AND THE CANANEA COPPER BUBBLE

By far the most swashbuckling figure in the history of the Mexican mining industry was "Colonel" William C. Greene. While the Guggenheims built an empire founded on financial acumen and sound metallurgical practice, Greene built an empire founded on prospectuses and sheer bluff. Greene, in his time, controlled the largest copper ore body in all Mexico, yet he drove his company into bankruptcy. The story of his opening of the Cananea copper deposit is fantastic—stranger than fiction.

William Cornell Greene was born in Hornellsville, New York, in 1851.[1] For forty years he made an indifferent living in Kansas and in the Southwest by doing government contracting, driving teams, prospecting, and punching cattle. He was accorded the title "Colonel" for leading a band of men in an Indian raid, and he proudly used it for the rest of his life.

In 1877 Greene arrived in Arizona, where he cut wood, prospected, and finally went to work in Tombstone as a miner. Eventually he saved up enough money to buy a small ranch in the San Pedro Valley. The ranch was not too successful, yet Greene had continual visions of doing something big. He attempted to irrigate his land to grow alfalfa, but his dam burst, and in the resulting flood his daughter and a playmate were drowned. Greene was certain that the dam had been sabotaged by a neighbor, Jim Burnett, who was far away at the time. Mad with rage, Greene confronted Burnett in the streets of Tombstone. Shouting Biblical justifications for revenge, he shot Burnett. At his trial, Greene was freed solely on the basis of his popularity in the community. "It is told that long thereafter, nearly every man connected with that case who had shown any friendliness, including the sheriff and other peace officers and members of the jury, were given good jobs in some one of Greene's enterprises."[2] Sheriff Scott

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[1] The personal biographical material on Greene is based on James H. McClintock, *Arizona*, 3 vols. (Chicago, 1916), vol. ii, pp. 603-605, and "William C. Greene" in the *Dictionary of American Biography*, vol. vii, pp. 577-578. The biography of Greene in Ira B. Joralemon's *Romantic Copper* (New York, 1934), Chap. 6, is almost wholly from McClintock. *The Dictionary of American Biography* gives Greene's birthplace as Chappaqua, Westchester County, New York.

[2] McClintock, *op. cit.*, p. 603.

White, for example, later became secretary of the Greene Consolidated Copper Company.[3]

A short distance south of the American border was the Mexican mining district of La Cananea, Sonora. Cananea had been known since the eighteenth century, when the mine was worked by Jesuits for silver and copper.[4] In 1856 General Ignacio Pesquiera, leading 500 men, settled in the district. The local mine owners interested the general in copper mining. He became a partner, working the mines with the labor of the men under him and building a smelter at the foot of Cananea mountain. The mines were worked until 1885, when the general died. In the meantime, stories about the district began to spread. In 1881 a Cleveland company worked a group of claims and opened a smelter, only to give up in 1884. In 1883 a California company started work but abandoned its claims when the manager was killed. Ten years later Major R. F. Morton started work for F. A. Heinze. When Morton was killed by a Chinese cook during one of his visits to the camp, the project was abandoned.

In 1898 Greene wandered across the border into Mexico, ostensibly following some strays. At Cananea, Greene came across what he believed to be a veritable mountain of copper. His ambition conjured up visions of an enterprise grand enough to challenge even Butte, Montana. Greene got an option for $47,000 on the "Cobre Grande" property from General Pesquiera's widow. His down payment consisted mainly of promises. Having only a few hundred dollars himself, Greene contacted two friends in Tombstone, Ed Massey and Jim Kirk. Greene thought up a scheme by which Kirk, who was an excellent miner drawing good pay, was to work in Tombstone and send most of his wages to Massey in Cananea. Massey would then keep a gang of Mexicans busy proving ore. The Mexicans were to be fed tortillas, beans and promises of wages when Senõr Greene got

[3] *Engineering and Mining Journal* (hereinafter cited as *E. & M. J.*), vol. 68, Dec. 30, 1899, p. 801.

[4] Benjamin Rubio, "Las minas Capote 15, Veta Grande y La Colorada de la negociación minera 'The Cananea Consolidated Copper Company,' S.A.," *Boletín Minero*, vol. xxv, no. 6, June, 1928, p. 362; S. F. Emmons, "The Cananea Mining District of Sonora, Mexico," *Economic Geology*, vol. v, no. 4, June, 1910, pp. 315-317; J. R. Southworth, *Las minas de México*, 1905, pp. 230-231, give the earlier history with some detail. For two contemporary accounts of the geology of Cananea, see W. L. Austin, "Ore Deposits Near Igneous Contacts," American Institute of Mining and Metallurgical Engineers, *Transactions*, vol. xxxiii (1902), pp. 1070-1077, and W. H. Weed, *Principal Copper Mines of the World* (New York, 1907), pp. 232-241.

a customer for the mine. Massey, who was known for talk, played his role well.

Greene was a born promoter and prospectus writer. His original prospectus was so alluring that for a time he decided to keep the mine himself. Still, he needed a few thousand dollars to start with. In the winter of 1898 and the spring of 1899, Greene filled southern Arizona with stories of his Cobre Grande, and began promoting a corporation by that name to purchase the option from him for $250,000 plus a one-twelfth interest. The moving spirit in organizing the company was George Mitchell, a Jerome, Arizona, smelterman. The company was formally founded at Cananea on May 26, 1899. In April, 1899, 250 men were already at work with 130 more busily building roads. Rumor had it that Senator William A. Clark, of Montana copper fame, had bought property in the district and that Greene was building a 500-ton smelter. The smelter was to work on surface ore, reputedly so plentiful that sinking a shaft would not be necessary. By May, 1899, Mitchell had a 100-ton smelter going for Greene. Since the smelter paid only one third of the running costs, Greene soon needed an "angel." That angel was J. H. Costello of Pennsylvania, whose proposition was control of the workings in return for purchasing 31,000 shares. Such a deal was a hard pill for Greene to swallow, particularly since he now had a far-reaching concession on six square miles of land. However, with new capital, Mitchell was able to double the smelter's capacity, while Kirk and Massey proved more ore.[5]

Soon Greene repented of his decision to sell. No novice at gambling, he had kept an ace in the hole, which was the fact that the agreement to turn over his option to the Cobre Grande Company was not registered in Mexico, and hence was not binding in the eyes of the Mexican courts. In October, 1899, the court at Arizpe, "with which Greene had great influence," obligingly signed an order ousting Costello's men and returning the mine to Greene. Greene and his cronies showed up with an armed force, also provided by the friendly local authorities, and took over the mine. Greene then turned over his option to the Cananea Consolidated Copper Company, S.A., a Mexican corporation which he had organized on September 30, 1899.[6]

[5] *E. & M.J.*, vol. 67, Apr. 15, 1899, p. 452; Apr. 29, 1899, p. 512; vol. 68, Aug. 26, 1899, p. 256; Chas. F. Shelby, "Growth of the Cananea Copper Smelting Works," *E. & M.J.*, vol. 86, Nov. 14, 1908, p. 954.

[6] McClintock, *op. cit.; E. & M. J.*, vol. 69, Feb. 10, 1900, p. 180.

Greene did not get the $250,000, but he now had a 200-ton smelter and a prodigious amount of proven ore.

In order to legalize his position, Greene hurried East in October to look for cash. He organized the Greene Consolidated Copper Company, a West Virginia corporation capitalized at $5,000,000 and holding all the stock of Cananea Consolidated, the operating company. Greene approached James Shirley of New York and offered him 100,000 shares of Greene Consolidated as commission, if he sold 100,000 shares. Shirley completed a deal, but before the final papers were signed Greene found support elsewhere and called the deal off. Shirley joined the growing chorus of litigants dogging Greene's heels.[7] Greene's new angel was Tom Lawson, of Boston, who was deep in the machinations surrounding the formation of the Amalgamated Copper Company. Lawson promised to honor Greene's drafts up to $1,000,000 in return for a controlling block of stock at one third par value.

Greene returned to Cananea with bigger plans than ever. More men were hired at high wages. The new plant was very large, and soon Greene had drawn $135,000 from Lawson. Suddenly, Lawson refused to honor a $30,000 note. In Boston, Lawson's lawyer blandly informed Greene that the notes were for three months and that Lawson intended to call them in when they expired. If Greene could not pay, he would be sued, which would mean loss of the mine. Greene went on to New York to find some more money. Luckily, John W. Gates, with H. E. Huntington and Edwin Hawley, his associates, bailed Greene out.[8]

Greene then began to sell stock to the general public. His ability to interest small investors was phenomenal. The plush Wall Street office he opened did a land-office business. In New York, Greene became a familiar sight in the better hotels and bars with his ten-gallon hat and lavish spending. He was even called an Arizona "Diamond Jim" Brady. He easily spent more money than the mine was making, and at first only his gambling winnings managed to keep him in proper style. Now that his basic money problems were solved, Greene expanded most extravagantly. His private railroad car, it was said, was the most sumptuous ever built.

Greene reached a settlement with the American Cobre Grande

[7] *E. & M.J.*, vol. 68, Sept. 2, 1899, p. 290; vol. 71, Mar. 30, 1901, p. 414.

[8] New York *Daily Tribune*, Aug. 6, 1911; *Dict. of Amer. Biog.*, *loc. cit.*

stockholders in December, 1900. He agreed to buy 112,000 shares of Cobre Grande stock at $2.50 par, and to include the others at the same price. The stock had sold from 10 cents to $5.00 per share, and many Easterners were dissatisfied. The leader of the anti-Greene forces was Axel Hollenborg, a New York banker. Hollenborg obtained an injunction against Greene in New York and had former Mayor Hugh J. Grant appointed receiver. Hollenborg then carried the fight to Arizona where the case was tied up by Greene's attorneys. Greene had already learned the value of buying the leading legal talent of southern Arizona. As F. A. Heinze employed every legal trick in the books at Butte in his fight with Amalgamated Copper, Greene too carried on never-ending litigations. Even Greene's chief attorney did not know all the suits in which he was involved.[9]

In 1900 Kirk and Massey found the rich Capote and Oversight ore bodies. The Southern Pacific built a spur line to Cananea, which was opened in July, 1901. But Greene still paid dividends out of stock sales, since the cost of his improvements made his copper cost over 25 cents a pound. High-grade ore that could be fed directly to the smelter lasted only until the spring of 1902. H. W. Hardringe was hired to design a 500-to 600-ton mill. The mill, completed in July, 1902, was admittedly makeshift. Hardringe declared that "new features would be added as ore requirements demanded, rather than as inventors insisted." That winter Greene had six blast furnaces going and treated 1,000 tons of ore a day. When the seventh furnace went into operation in December, Greene Consolidated stock climbed to $26 a share. The new mill, however, was not well designed; and trouble again cropped up. A report of a new ore strike, which supposedly made it necessary to double capacity, did not offset growing rumors of mismanagement. When Greene Consolidated stock hit $14 a share during the Copper Panic of 1903, a complete change of management was deemed necessary.[10]

[9] McClintock, *op. cit.; E. & M. J.*, vol. 70, Dec. 22, 1900, p. 741; vol. 71, Jan. 19, 1901, p. 95; Mar. 30, 1901, p. 414; vol. 72, Aug. 3, 1901, p. 150; Aug. 10, 1901, p. 180; Aug. 31, 1901, p. 280; vol. 74, July 12, 1902, p. 63; Dec. 13, 1902, p. 798; vol. 75, June 6, 1903, p. 874.

[10] Anon., "La Compañía Minera de la Cananea (Sonora)," *Boletín de la Secretaría de Fomento* (Mexico), July, 1905; *E. & M. J.*, vol. 74, Aug. 2, 1902, pp. 166, 229; Dec. 6, 1902, pp. 744-745; Dec. 13, 1902, p. 799; vol. 76, Aug. 1, 1903, p. 173; Sept. 5, 1903, p. 364; Martin Schwerin, "Method of Concentrating at La Cananea," *Ibid.*, Sept. 26, 1903, pp. 463-464; Oct. 7, 1903, p. 600; Oct. 24, 1903, p. 638.

Financial trouble was not a new phenomenon for Greene Consolidated. In October, 1902, the Board of Directors was juggled, and H. E. Huntington of the Southern Pacific Railroad was added in order to give the Board weight. On November 5, 120,000 shares of stock were issued in addition to the 600,000 outstanding. Greene's credit was good enough to sell the $10 par shares for $20. The rising market price soon added to the profits of the insiders handling the transaction. The drop in the ore grade in 1903 necessitated further juggling of the Board of Directors. In October, 1903, the Board boasted of a number of prominent men, including Bernard H. Baruch and H. E. Huntington, who were later joined by Anton S. Eilers and W. B. Devereux.

Despite reports of Cananea's producing 60 tons of copper per day at a cost of 10.6 cents per pound, Greene's enemies claimed that the ore was too refractory, causing the use of too much barren flux. Labor difficulty was also hinted at, with the cost of labor in the long run being equal to that paid in Arizona, "cheap Mexican labor notwithstanding." Wall Street was rife with rumors that Greene Consolidated had had to go to the Amalgamated Copper Rockefeller interests for a loan secured with Greene Consolidated stock: a $2,000,000 reorganization was needed.

To raise the money, Greene had to retrench and seek out the best technical advice. George Mitchell, who had built the smelter in the halcyon days, broke relations with Greene with the inevitable lawsuit. Louis D. Ricketts was offered the position of chief metallurgist, but he felt that the position of the company and its management was not stable enough. He agreed, however, to act as consulting engineer for a new mill construction job.[11] During the second half of 1903 the workings practically closed while the mill was completed. The new mill cost $250,000 and raised the company's milling capacity to a potential of 2,000 tons of raw ore per day. In May, 1904, only 1,000 tons of ore were being milled, but the percentage of mined ore needing beneficiation before smelting constantly increased. To make matters worse, water in the mines became a major problem. Nevertheless,

[11] *E. & M. J.*, vol. 74, Oct. 25, 1902, pp. 562, 563; Nov. 15, 1902, p. 663; Nov. 29, 1902, p. 726; vol. 75, Mar. 14, 1903, pp. 415-416; Mar. 28, 1903, p. 469; vol. 76, July 25, 1903, p. 140; Aug. 15, 1903, p. 254; Sept. 5, 1903, p. 366; Oct. 24, 1903, p. 638; Dec. 5, 1903, p. 857; James W. Malcolmson, "Mining in Mexico," *Ibid.*, vol. 77, Jan. 7, 1904, p. 22; Anon., "Greene Consolidated Copper Company," *Ibid.*, vol. 79, Feb. 2, 1905, p. 250.

in July, 1904, Greene issued an optimistic report. By more selective mining methods and a retrenchment policy, he claimed that costs were reduced to only 8 cents per pound. The furnaces treated 33 per cent more ore and concentrates, while better techniques cut coke consumption 26 per cent. Roasters worked on 280 tons of flue dust per day, but a new sulphide ore body was being opened which would cut flue dust and make mine maintenance cheaper. Although the sulphide ore had to be roasted and treated in a reverberatory before smelting, a new accounting method enabled the company to cut costs down the line. Nine hundred and sixty-seven thousand dollars in profits and a $518,000 dividend were announced on a capitalization of $8,640,000. A dampening note was the careful avoidance of ore reserve estimates, due, no doubt, to a compromise between the "optimistic" president and his more cautious advisors.[12]

Although Greene was wealthy and a large operator on Wall Street, he never was an insider. He tried to play a lone hand, tempered by common sense and his knowledge of gambling, against the bigger Wall Street operators. For a while his luck was with him, but he had to fight every inch of the way. Greene was the victim of constant stock raids. At one time, in order to cover some commitments, he had to reclaim some stock from an associate who was holding it under option. When the stock was not forthcoming, Greene pulled out a six-shooter, broke the man's desk open and took his stock back. When Phelps Dodge bought some Cananea stock, Greene exploited that company's reputation for conservative investments to drive the price of his shares even higher. In the fall of 1903, Greene's erstwhile associates, Gates and Hawley, attacked him, forcing his stock down from $32 to $10 per share. Gates' and Hawley's friends on Greene's Board of Directors sent an expert to examine the mine and prepare a report stating that the ore body was playing out. Greene managed to keep his investors' faith, weathered the attack, and in turn announced the finding of $100,000,000 in new copper ore. Greene himself speculated heavily in his own stocks on margin. He made a big killing in the bull market that developed after Theodore Roosevelt's election in 1904. Soon afterward, in 1904, Tom Lawson's

[12] J. R. Southworth, *Las minas de México*, 1905, pp. 231-232; Dwight E. Woodbridge, "Ore Dressing at Cananea," *E. & M. J.*, vol. 77, June 30, 1904, pp. 1044-1045; *Ibid.*, vol. 78, Oct. 20, 1904, p. 617; Dec. 8, 1904, p. 898; Dec. 15, 1904, p. 938; Anon., "Greene Consolidated Copper Co.," *Ibid.*, vol. 79, Feb. 2, 1905, p. 250.

manipulations brought more trouble to Greene. Both Cananea and Amalgamated shares broke under Lawson's raids on copper stocks. Greene was hammered unmercifully and lost millions. After Lawson's trickery, Greene said that he would ruin the Boston promoter. When Lawson included Greene in his famous series of exposé articles in *Everybody's Magazine*, Greene became explicit and said he would shoot Lawson. The fight turned into a long series of paid advertisements in the newspapers in which Greene and Lawson engaged in vicious mud-slinging. Finally, Greene boarded a train for Boston with a declaration that he was going to settle accounts with Lawson. Lawson visited Greene in his hotel room. Instead of a Western duel, the men emerged with their arms across each other's shoulders and went to the bar for a drink.[13]

From 1904 to 1906 Greene was at the top of his wave. The smelter furnaces, Greene's symbols of power, grew until they numbered eight. The largest furnace was 210 inches at the tuyères; another "was practically the same as those in use at Anaconda before the large Mathewson furnaces were installed." The original hot-air blast furnaces had been somewhat modified in practice, principally because the high cost of coke made it impossible to run them with hot air. Their design permitted only one-side hand feeding! Arthur Dwight, the new manager, planned to replace them with water-jacketed cold-blast furnaces, and then to add storage space, introduce a belt system of feed, and build four roasting furnaces and a new reverberatory to run on waste heat in order to prevent the concentrated hard ore from sliming and clogging the furnaces with an excess of overly fine-crushed ore. At the same time, Dwight worked with Jim Kirk to change from square sets to a caving system of mining in an attempt to raise production to a ton of ore per day per man.

The internal difficulties were not generally known. The public saw 5,500 men on the payroll and copper production comparable to Phelps Dodge's Copper Queen mine and Bisbee smelter. Two facts were not usually recognized. Wages made labor costs equal to costs at Douglas, Arizona; and Dwight, after a long struggle to overcome the old poor design, had to resign because he was continually hampered by Greene's cronies and his autocratic methods of running the mine.

For his work at Cananea, Greene was given a concession by the Mexican government on March 23, 1904. The concession gave him

[13] Joralemon, *loc. cit.;* New York *Daily Tribune*, Aug. 6, 1911.

tax exemptions and a nine hundred square kilometer plot to be exploited exclusively by his company. In turn, Greene guaranteed to produce 250,000 tons of copper a year. Later, in consideration for further improvements, the state government cancelled the company's original concession for twenty years dating from December 4, 1899, substituting a new twenty-year concession from April, 1908, and exempting the company from payment of export taxes on copper bullion produced from its mines.[14]

Greene formed a constellation of companies to exploit the area. The Cananea Consolidated Copper Company held 37,000 acres of mineral lands and over 350,000 of timbered surface lands—a total of 630 square miles. Thirty miles of railroad covered the property, with twelve locomotives and complete equipment. Greene started to spread out with two new companies: the Greene Gold-Silver Company and the Greene Consolidated Gold Company.[15] Capitalized at $25,000,000, the companies proceeded to buy a series of old gold and silver mines throughout northern Mexico. The stock was peddled on the stories of the mines' old production, and several mills were built to treat the ore, which never came out of the mines. All told, the gold companies controlled some twenty properties in various stages of decay or underdevelopment, two small smelters, a large exploration concession, and 400,000 acres of timberland.[16] Greene also organized the Sierra Madre Land and Timber Company to cut the timber forms for the Cananea mines, and the Rio Grande, Sierra Madre and Pacific Railroad to serve the timber company and to link Cananea with the coast. The lumber enterprise was run on a prodigious scale. The company was financed solely on the basis of a contract with the copper company; no one else was able to afford the timber. Finally, the Casa Grande Irrigation Company was organized to dam the Gila River and irrigate the lands around it. For himself, Greene used his "dividends" to acquire the Turkey Track ranch, said

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[14] Dwight E. Woodbridge, "La Cananea Mining Camp," *E. & M. J.*, vol. 82, Oct. 6, 1906, pp. 623-627; D. E. Woodbridge, "Concentration at Cananea," *Ibid.*, Nov. 24, 1906, p. 965; Chas. F. Shelby, "Growth of the Cananea Copper Smelting Works," *Ibid.*, vol. 86, Nov. 14, 1908, p. 954; *Mexican Year Book for 1912*, p. 160.

[15] J. R. Southworth and P. G. Holms, *El directorio oficial minero de México*, 1908, pp. 55-59, 193; *E. & M. J.*, vol. 79, Jan. 15, 1905, p. 35; C. Nelson Nelson, "The Sahuaripa District, Sonora, Mexico," *Ibid.*. vol. 82, Oct. 6, 1906, pp. 629-630; *Ibid.*, vol. 83, June 1, 1907, p. 1043.

[16] Joralemon, *loc. cit.*

to be 40 by 100 miles, lying on both sides of the border, with 40,000 head of purebred Herefords.

Greene himself was described as a modern Alexander. One eulogy unabashedly stated:[17]

> And now a word or two about the man who has achieved this marvelous metamorphosis, aided by his chosen band of workers. To call him a Captain of Industry were far too weak a term—a Commander-in-Chief, would be more fitting—and for that which he has accomplished in Cananea, and by the great work that he is inaugurating in the Sierra Madres, in Northern Chihuahua, he will long and favorably be known to posterity in the Republic of Mexico. What Cecil Rhodes has done for South Africa, that will W. C. Greene do for Northern Mexico, converting a wild and unproductive region into a hive of industry and prosperity.

Some men, however, were not fooled. Years later Ricketts related a story of how Greene was persuaded to drill for oil near the Sonora copper mines. When he failed to strike oil-sand, he asked Ricketts' advice on where to sink his next well. Ricketts answered, "In Pennsylvania."[18] Another story was told of Greene chiding one of his lumber contractors by telling him that it was cheaper to import Puget Sound pine than to cut it just over the hill in Mexico. The contractor answered that it also would be cheaper to buy copper on the New York market and haul it to Cananea than to produce it there.[19]

Greene's work was not all bluster. Starting with the small smelter erected in 1899, he built a company with eight furnaces capable of handling 2,500 tons of ore a day. His labor force numbered over 3,500 men. The town of Cananea, a Greene creation, had a population of 25,000. To a great extent Cananea was almost a spot of the United States spilled over the border: about 40 per cent of the men employed were Americans. Any of "Ol' Bill's" cronies from Tombstone, Globe, or Bisbee, who wanted to earn $5 a day with easy promotions, could wander over the border and sign up. Greene felt that the more men on the payroll, the more important the company. Greene's ideas were often rough and ready. The sanitation system used at Cananea is a prime example. In 1905 a new doctor instituted sanitary improvements with the object of making the Cananea camp, "The cleanest and healthiest in the Republic of Mexico." One innovation was a

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[17] Southworth, *Las minas de México*, 1905, p. 235.

[18] T. A. Rickard, *Interviews with Mining Engineers* (San Francisco, 1922), p. 455.

[19] Joralemon, *loc. cit.*

dam in the main gulch with a capacity of half a million gallons. Once a week the dam was opened to flush out the refuse and sewage "which formerly was such a menace to health," so that typhoid fever and smallpox, which had been prevalent, became "very rare."[20]

In seven years, from 1899 to 1906, Greene had grown from a poor rancher with perhaps a few hundred loose dollars to his name, into one of the Titans of the Southwest. It is estimated that Greene collected about $12,000,000 from his various promotion schemes, but dividends were paid by juggling the capital accounts. In the meantime, the Rockefellers' Amalgamated Copper interests, captained by Thomas F. Cole and John D. Ryan, bought their way deeperinto Cananea, and waited for Greene's star to wane. It was only a matter of time until circumstances caught up with Greene. No ore body, be it solid copper, could keep up with Greene's spending. In 1906 two events called Greene's hand, and what he held could not cover his bluff.

The first event was the Cananea miners' strike of June, 1906. The impact of the strike transcended Cananea and Greene; the strike had repercussions in the development of events leading up to the Mexican Revolution of 1910. In the spring of 1903, an abortive strike of American miners was organized at Cananea by the Western Federation of Miners. The strike was broken by the Mexican *Rurales* (federal police), who arrested and escorted the men over the border.[21] Many of the Mexican workers, who wandered back and forth over the border also picked up union ideas. However, the Federation was a minor factor in later developments. The real impulse to organize a strike at Cananea came from the *junta* (committee) of the Liberal Party organized by the Flores Magon brothers in St. Louis, Missouri. The political aspects of a strike in Mexico at the time seemed so fantastic that Americans refused to believe it. *The Engineering and Mining Journal* editorialized that the strike must have been carried out by the Western Federation of Miners, since it was "hardly credible" for a political *junta* in St. Louis to have organized it.[22]

> The affair is most concisely expressed in the best informed quarter that, "some fellows tried to start a labor union, which the Mexicans understood to be a reason to get drunk, and they got drunk."

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[20] Southworth, *Las minas de México*, 1905, pp. 233-234; Joralemon, *loc. cit.*

[21] Reginal W. Petre, "The Mines of Pinitos and Azul Mountains, Sonora, Mexico," *E. & M.J.*, vol. 76, Sept. 26, 1903, p. 466.

[22] Editorial, "The Riots at Cananea," *E. & M. J.*, vol. 81, June 9, 1906, p. 1100.

A liberal club was founded in Cananea in January, 1906. Many of the party workers got jobs in the mine and started to talk to the men.[23] The platform of the Liberal Party called for various social guarantees for the workers and equal pay for equal work for Mexicans working with foreigners. Foreign workers were never to be in the majority in any enterprise. These provisions had a special appeal to the Cananea workers, since they were paid only three pesos a day while the numerous Americans got at least six. Although three pesos a day was probably the highest wage paid in Mexico at the time, the cost of living in Cananea was also abnormally high. Furthermore, while the Americans got paid in dollars, the Mexicans often got scrip (*bilimbiques*) which was accepted only at a discount. The attitude of the Americans and their Mexican friends, the *mexicanos agringados*, also enraged the Mexican miners.

The immediate cause of the outbreak of the strike is not known. It probably started with the rumor that daywork was to be substituted for piecework, and that many Mexicans would be laid off, while others would have their tasks assigned in large quotas. The strike started among the workers in the Oversight mine on the evening of May 31, 1906. The demands presented on June 1 called for: (1) raising the basic wage from three to five pesos a day; (2) an eight- instead of a nine-hour day; (3) firing a certain objectionable foreman; (4) limiting the number of Americans to no more than 25 per cent in any division; (5) placing responsible men in charge of the mine cages (a standing grievance); and (6) making provisions for promotions for Mexicans. When the demands were presented, the company asked the men to return to work, assuring them that their grievances would be studied. The strikers' committee got cold feet, and before leaving they lowered their demand to four pesos, though the men outside still called for five.[24] Greene addressed an open letter to the miners, stressing the paternal aspects of his development, the high wages paid, and his feelings for the workers, having been one himself. His appeal made no impression at all.[25]

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[23] Leon Díaz Cárdenas in *Cananea* (Biblioteca del Obrero y Campesino, número 11, Mexico, 1937), gives this phase in detail. The material for this pamphlet was obtained in great part from Ricardo Flores Magon. Although the interpretation is a naive Marxism, the various documents printed are valuable. Also see Marjorie R. Clark, *Organized Labor in Mexico* (Chapel Hill, 1934), pp. 10-11.

[24] Díaz Cárdenas, *Cananea*, pp. 21-34, 42n.

[25] The letter is reprinted—with marginal comments of a "Marxist" nature—in

By this time, events had gone past the point of reasonability. The striking workers had been touring the area, calling out division after division. Banners were improvised, and a march through the streets of Cananea was organized. Trouble finally broke out at the lumberyard. The Metcalf brothers, who were in charge of the yard, attempted to stop their men from walking off and sprayed the demonstrators with a water hose.[26] When the strikers charged the Metcalfs, they were met with rifle fire. In the end, the Metcalf brothers and at least seven strikers were killed. The lumberyard was burned. The fire became the signal for a three-day reign of terror and hysteria.

The company police patrolled the town with drawn guns. Several pitched battles were fought in the streets, and a number of strikers barricaded themselves on top of a nearby hill. Greene and the mayor of Cananea sent telegrams to Governor Yzabal demanding protection. The American Consul sent a number of hysterical telegrams to Fort Huachucha, Arizona. The commander actually left the Fort with a squadron of cavalry headed towards Mexico. On second thought, he wired Washington, and was stopped at the frontier.[27] Governor Yzabal telegraphed Washington for United States troops. The State Department and the General Staff turned down the unprecedented request. Greene sent word to Bisbee that a race riot was in progress and Americans, women and children among them, were in danger. A group of about 200 men, including United States government rangers, assembled at Naco, where they were escorted across the border by Governor Yzabal.[28] The Americans elected a Ranger Captain to lead them. Exactly what happened is in dispute. Fortunately they had no part in the disorder that followed. One account says that Greene had the Americans sent to guard the plant, and thus they did not mix with the rioters. Another account claims that they re-

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Díaz Cárdenas' *Cananea*, pp. 37-48. Ira B. Joralemon's account of the strike in *Romantic Copper*, pp. 160-162, is a rather fanciful and crude attempt to whitewash Greene.

[26] Díaz Cardenas, *op. cit.*, pp. 48-53. John K. Turner in *Barbarous Mexico* (New York, 1910), pp. 213-219, gives a very competent account of the strike compiled by interviewing eyewitnesses while Turner was a reporter in Mexico. Except for certain numerical details which are impossible to ascertain because of the confusion, Turner's account agrees with that of Díaz Cárdenas.

[27] Anon., "The Cananea Troubles," *E. & M. J.*, vol. 81, June 9, 1906, p. 1104; Turner, *loc. cit.*

[28] Díaz Cardenas, *op. cit.*, pp. 56-62; Turner, *loc. cit.;* P. G. Martin, *Mexico of the XXth Century* (London, 1907), vol. i, p. 22; Joralemon, *loc. cit.*

turned to the United States of their own accord when they discovered the true state of affairs at Cananea. Ira Joralemon says that they were drunk on a load of whiskey picked up at Naco, and were shunted back to the United States. It was only the friendship of Yzabal and Greene with Vice President Ramon Corral, a *sonorense* himself, that enabled them to ride out the storm of protest over requested and actual American intervention.

Meanwhile, groups of *Rurales* and regular troops from the Yaqui River country appeared. When the troops arrived, the fifteen men in jail were taken out and summarily shot. The men barricaded on the hill surrendered when their ammunition ran out. Yzabal was for hanging the leaders on the spot, but Vice President Corral vetoed the suggestion, "because it would cause a great scandal in the country."[29]

On June 5 the *Rurales* gave the strikers two days to return to work. The strike leaders and the more vociferous strikers were inducted into the army or sent to prison. Two hundred soldiers plus heavily armed police were stationed at Cananea.[30] The plant was back in operation in ten days; the only property damage was the burned lumber yard.[31] " 'President Diaz,' " said Greene, " 'has ordered me not to raise wages, and I dare not disobey him.' "[32]

The effect of the strike was not confined to Cananea or Greene's enterprises alone. It disabused many Americans of the idea that the Mexican peon would be eternally satisfied with corn and beans and was so docile that, instead of complaining, he would simply move on when conditions did not suit him. Francisco Madero, the initiator of the Mexican Revolution of 1910, pointed to the Cananea strike as being indicative of the shortcomings of the Diaz regime. Considering the concessions and exemptions given the company, Madero contended that its refusal to pay decent wages and the government's connivance in breaking the strike amounted to national scandals.[33] In later years Cananea was referred to as "the seedbed of the Revolution in the North." Even today, the mine union local at Cananea is named "*El Gran Sindicato Obrero 'Martires de 1906'*."

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[29] Díaz Cárdenas, *op. cit.*, pp. 71-72.

[30] *Mining and Scientific Press*, vol. 93, Sept. 15, 1906, p. 302.

[31] *E. & M. J.*, vol. 82, July 7, 1906, p. 39.

[32] Turner, *op. cit.*, p. 219.

[33] Francisco I. Madero, *La sucesión presidencial en 1910* (San Pedro, Coahuila, 1908), pp. 206-208.

Although the company remained intransigent, its labor policies gradually changed, perhaps owing to the change in management.[34] While shifts were reduced to eight and a half hours a day, wages remained the same. Efficiency, however, fell an estimated 20 per cent, allegedly "due to political unrest, agitation, and similar causes." While 36 to 40 per cent of the men employed before 1906 were foreigners, afterwards the percentages fell drastically from 34 per cent in 1906 to 13 per cent in 1912. As a whole, Mexican wages went up 100 pesos a year while American wages declined by a like amount. The shift did little to alter the pre-1906 averages of 1,298 pesos per year for Mexicans and 3,458 pesos for Americans. The Mexican workers were receiving in Mexican silver pesos what the Americans were receiving in U.S. gold dollars—at an exchange rate of 2 to 1, with the difference between men on similar jobs maintained. The wage differential was excused by the difference in the work done. No Americans were employed underground, except as foremen. Imported Chinese labor worked for less than Mexicans: a Chinese printer earned 3.50 pesos a day, while his Mexican helper was paid 6! The policy of reducing Americans was not done to soothe the Mexicans' feelings. Dwight E. Woodbridge noted:[35]

> In connection with this entire matter it is interesting to note the fact that the gradual weeding out of foreign labor began immediately after a Mexican copper strike in 1906, and that its first effect was to eliminate from the camp a number of agitators and organizers of the Western Federation of Miners, who had been active for some time.

Another consideration was the fact that new management was faced with the need for drastic economy, and the wider employment of competent Mexicans would save money.

Later in 1906 Greene ran into more trouble. Debts were coming due when the second stroke fell: the public lost confidence in Greene and the sale of stock did not cover his losses. Small investors refused to buy more copper stock for a rise. The Amalgamated Copper interests forced a merger. Greene lost control of his beloved company. The stock and money given to him by the new company had to go to cover his debts, especially those contracted by his pet lumber company.

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[34] Dwight E. Woodbridge, "Labor Data of a Northern Mexico Mine," *Mexican Mining Journal*, July, 1913, pp. 348-349, reprinted from *E. & M. J.*, vol. 96, July 26, 1913, pp. 177 ff.

[35] D. E. Woodbridge, "Labor Data . . . ," *loc. cit.*

In March, 1907, Louis D. Ricketts, a prominent mining engineer associated with the nearby Phelps Dodge operations in southern Arizona, came down to take charge for the Amalgamated interests. Ricketts found the enterprise in bad shape.[36]

> The mines were under-developed and required a great deal of planning and a great deal of money spent in order to centralize, provide new outlets, and open up further ore-reserves. The smelter was an impossible structure, and aside from the bedding plant, had to be completely reconstructed. Steps had to be taken to induce the railways to give Cananea at least approximately the rates that neighboring points in Arizona were enjoying. It was just after I took charge of the property that the panic of 1907 came, and in order to be successful it was apparent that the operating costs at Cananea had to be reduced about 9c per lb. of copper. This was done, but it took all of the planning and hard work of the entire organization to accomplish it.

Improvement was apparent immediately. From August, 1906, to January, 1907, the cost of mining and mine construction dropped 13 per cent; by September, 1907, it was down 37 per cent. Charles F. Shelby took control of the smelter plant in July, 1906. Shelby tore out the wornout furnaces and converters, replacing the entire piecemeal structure with eight new furnaces capable of smelting 90 per cent more charge. The congested location and antiquated handling facilities were all redesigned so that the cost of mining and beneficiating a ton of ore was 20 per cent less than in 1906 and 30 per cent less than in 1905. The improvements to put Greene's bonanza on a paying basis cost \$2,500,000.[37] Greene's dream of producing 6,000,000 pounds of copper a month was not reached until October, 1911, while total costs leveled off at about 9½ to 10 cents per pound of copper.[38] Costs in individual divisions were sharply reduced. The treatment cost per ton of ore was cut from \$10.21 in 1905-06 to \$5.257 in 1911. Mining costs fell from \$3.28 per ton in 1907 to \$2.46 in 1911. Smelter charges went from \$6.82 per ton in 1907 to \$2.57 in 1911.[39]

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[36] Louis D. Ricketts in an interview with T. A. Rickard, *Interviews With Mining Engineers*, pp. 442-443.

[37] *E. & M. J.*, vol. 84, Aug. 17, 1907, p. 324; Louis D. Ricketts, "The Cananea Consolidated Copper Company," *Ibid.*, vol. 85, Apr. 11, 1908, pp. 754-755. Also see Chas. F. Shelby, "The Cananea Blast Furnace," *Ibid.*, Apr. 25, 1908, pp. 841-852.

[38] *E. & M. J.*, vol. 92, Dec. 2, 1911, p. 1108; L. D. Ricketts, "Cananea Consolidated Copper Co.," *Ibid.*, vol. 91, June 24, 1911, pp. 1246-1248.

[39] Report of W. D. Thornton, "Greene Cananea Consolidated Copper Co., S. A., 1911," *Mexican Mining Journal*, July, 1912, p. 46.

The new company did not pay its first dividend until March 1, 1912. Profits for 1912 were set at $1,026,951, while the cost of working the mine was 10⅛ cents per pound of copper. Cananea became a sturdy member of the fraternity of great copper mines.[40]

The corporate organization of the Cananea holdings was by now a complex of holding companies. Greenes' major holding had been the Cananea Consolidated Copper Company, S. A., the operating corporation for the Greene Consolidated Copper Company. The original capitalization of $5,000,000 had been raised to $8,640,000 in order to facilitate Greene's borrowing. Paralleling Greene's original holdings were those built up by the Cole-Ryan-Amalgamated interests, to a great extent with Greene's help. The Minnesota capitalists diligently amassed a large series of corporations based on the small mining claims neighboring Greene's holdings.[41] In the summer of 1906, a merger was engineered through The Cananea Central Copper Company, incorporated in August, 1906, in Minnesota with a $10,000,000 capitalization.[42] Cananea Central was then able to purchase the American Mining Company from the Lindsay interests of Boston. The America mine reputedly cost $2,500,000, which was quite a boost over the $100,000 option held by the Lewisohn's the year before. Despite Mr. Lindsay's supervision, and "the regular Cole plan of pushing and skill," the property produced only 100 tons of ore a day by September, 1906. The prize was not the mediocre America but the adjoining Greene property.

When Greene's magic touch with small investors faded, the Cole-Ryan group, using its Standard Oil connections, was able to close off all possible credit sources. Unable to work the mine in his extravagant manner without outside money, the "Titan of the Southwest" was forced to accept ignoble terms of surrender. The terms were set in December, 1906. Greene Consolidated and Cananea Central were to be merged under a new company, the Greene-Cananea Copper Company, a Duluth, Minnesota, corporation capitalized at the un-

[40] *E. & M. J.*, vol. 93, Jan. 27, 1912, p. 240; June 15, 1912, p. 1202.

[41] Their holdings started with the San Pedro Copper Co., S. A., and the Cananea Development Co., S. A. The Cananea Development Co. was owned by the Cananea-Duluth Copper Co., an Arizona corporation.

[42] Cananea Central took over all the stock of the San Pedro Copper Co. and 268,180 shares of the 269,236 outstanding shares of Cananea-Duluth.

believable sum of $60,000,000.[43] Greene agreed to the merger on the condition that he be retained in the new company. Three months later, on February 15, 1907, Greene was ousted as president and dropped from the Board of Directors. The Greene-Cananea company eventually controlled 961,869 shares of Greene Consolidated and 599,758 shares of Cananea Central. In 1912 the Cananea Central company was dissolved after Greene-Cananea acquired all of its outstanding shares. Thus Greene-Cananea emerged holding all the stock of a single company, Cananea Consolidated, which in turn owned and operated the mine, mining claims, and other properties in the Cananea district.[44]

The years 1907 and 1908 were troublesome ones for Greene and the companies he founded. Louis Ricketts' $2,500,000 rebuilding of Cananea was followed by the Panic of 1907 and the closing of all Amalgamated Copper mines in October. Remembering the strike of

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[43] 2,500,000 shares with a par value of $20 were to be issued. 1,500,000 shares were to be exchanged for Greene Consolidated on the basis of 1.5 shares of the new company for each share of the old. The remaining million shares were to be exchanged at one for one for Cananea Central stock. An additional bonus of $4,000,000 was paid to Greene Consolidated for 200,000 shares of Cananea Central in its treasury. The 200,000 shares had been paid over when Cananea Central was formed in return for a large tract of mineral land transferred to it from Greene's holding. None of the stock of the new Greene-Cananea company was offered to the public.

An examination of the terms discloses that Cananea Central was merely a motley collection of mediocre mines that was being "sold" to Greene-Cananea for two fifths of the value of one of the world's great copper mines, with the combination capitalized at a fantastic watered figure. The Cole-Ryan holdings in both companies assured their control of the combination. The $4,000,000 paid for the Cananea Central stock was necessary to put the new company on its feet. Of the $4,000,000, $3,990,549 was marked up as profit, an indication of the value of the land advanced to Cananea Central to give it some property before the merger. Of the profit, $1,990,549 was put into the profit and loss account for the previous year and the $2,000,000 remaining was retained as income along with $1,350,000 from the sale of 76,500 shares of the Sierra Madre Lumber Co.

[44] In 1915, 30,800 shares of Greene-Cananea stock were turned over to the Anaconda Copper Mining Company by the Amalgamated Copper Company. Anaconda pursued a policy of buying Greene-Cananea stock on the open market. How many of the outstanding shares were held by Anaconda in July, 1929, is unknown, but an exchange was made of Anaconda stock for the remaining outstanding Greene-Cananea stock, making Greene-Cananea a wholly owned subsidiary. On December 31, 1928, the Greene-Cananea Copper Company was valued at $56,-265,665. In 1931, Anaconda acquired the Democrata Mining Company, owned by H. H. Hoffman of Cincinnati, Ohio, which was completely surrounded by

1906, troops were called in while the men were laid off in batches of 500. When the plant reopened in July, 1908, the cry for lower costs was stronger than ever, and Arthur S. Dwight was rehired to initiate innovations that had been vetoed by Greene three years before. Although there were reports of resumption of workings at the Greene Gold-Silver Company's El Salto mine at Ocampo, the rest of the properties remained dormant. The Sierra Madre Lumber Company, which was sold for $2,000,000 on deferred payments secured by 75 per cent of its stock, was in default after paying off $1,000,000 in previous advances and $150,000 in notes. The company's contract for 1,000,000 feet of lumber per year was cancelled and replaced with one calling for deliveries as needed at the market price. Greene left for Japan in August, 1908, "for his health." Rumors were circulated that he was trying to raise money for another plunge. The trip was fruitless, and Greene returned. The Panic of 1907 had left him only a pittance of his fortune, and he now retired to his ranch to finish out his life as a recluse.[45]

In 1910 an ironic note was added to the corporate history of the Cananea property. The ten-year old suit of Axel Hollenborg and other Cobre Grande stockholders was settled by a referee of the New York Supreme Court. The referee ruled in the company's favor primarily on the merits of the case. He also noted that similar decisions had been rendered in courts in Arizona and Texas. At the same time, two stockholders of Greene-Cananea brought charges against Thomas F. Cole and John D. Ryan, alleging conspiracy, waste of assets and

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Cananea properties. J. R. Southworth and P. G. Holms, *El directorio oficial minero de México*, 1908, pp. 181, 188-189; *Mexican Year Book for 1911*, pp. 213, 216; *Mexican Year Book for 1912*, p. 157; *Second Annual Report of the Directors of Cananea Central Copper Corporation for the Year Ending December 31, 1908* (Duluth, Minnesota, Mar. 6, 1909); *E. & M. J.*, vol. 82, Aug. 25, 1906, pp. 365, 368; Sept. 15, 1906, p. 522; Sept. 22, 1906, p. 567; Dec. 22, 1906, p. 1183; vol. 83, Jan. 5, 1907, pp. 6, 43; Feb. 23, 1907, p. 405; vol. 85, May 9, 1908, p. 947; vol. 90, July 9, 1910, p. 73; vol. 96, Sept. 27, 1913, p. 597; vol. 103, June 23, 1917, p. 1101; vol. 115, Mar. 21, 1923, p. 738; vol. 124, Dec. 17, 1927, p. 997; vol. 128, July 6, 1929, p. 34; vol. 132, July 13, 1931, p. 38; *Report of the Federal Trade Commission on the Copper Industry* (Washington, 1947), Part II, pp. 358-360; Ira Joralemon, *Romantic Copper*, p. 163.

[45] *E. & M. J.*, vol. 90, July 30, 1910, p. 212; Aug. 6, 1910, p. 286.

the withdrawal of $5,000,000 from treasury funds. Charges of stock-watering were merely an anticlimax.[46]

Greene met death in befitting turbulence. Always proud of his horses, he was thrown from his carriage by a pair of runaways. Suffering from a broken collarbone, two broken ribs, and a concussion, he developed pneumonia. A special train was rushed from El Paso with a team of doctors and nurses and supplies of oxygen. The train arrived too late, and on August 5, 1911, Colonel William C. Greene passed away.[47]

MARVIN D. BERNSTEIN
Washington, D. C.

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[46] *E. & M. J.*, vol. 84, Nov. 2, 1907, pp. 836, 842; vol. 85, Feb. 15, 1908, p. 385; Mar. 21, 1908, p. 627; May 9, 1908, p. 947; vol. 86, July 25, 1908, p. 188; Aug. 1, 1908, p. 243.

[47] New York *Daily Tribune*, Aug. 6, 1911, p. 7; New York *Times*, Aug. 6, 1911, p. 9; *Mexican Mining Journal*, Sept., 1911, p. 35; *E. & M. J.*, vol. 92, Aug. 19, 1911.

HERSEY, STAPLES AND COMPANY, 1854-1860: EASTERN MANAGERS AND CAPITAL IN FRONTIER BUSINESS[1]

Hersey, Staples and Company was organized by eastern men in 1854 to carry on a business in Stillwater, leading lumber town in Minnesota Territory. Bringing to this business venture on the frontier energy, experience in lumbering acquired in Maine, knowledge of the mercantile trade, and capital from Maine and Massachusetts, the four partners of Hersey, Staples and Company initiated an enterprise that gained the attention of businessmen throughout the Territory. The firm became the largest owner of pinelands in the St. Croix Delta, a leading producer of logs and lumber in an area that ranked first in lumber exportation in Minnesota, operator of the finest mill in the Territory, wholesaler and retailer of logs and lumber, part owner in boom companies, dam companies, and a general store, and later, promoter of railroads and banks. Although only one partner became a resident of Minnesota, the others were favorably known in the community in which their business was located. Few of the records of the company are extant, but the history of operations that can be discovered illuminate the general problems of running a lumber business in the West in the 'fifties.[2]

Hersey, Staples and Company was headed by Samuel Freeman Hersey, a man who brought to the business years of experience in the lumber industry in Maine and who owned land in Michigan, Canada, and Iowa. Isaac Staples, the resident partner in Stillwater, was also a state-of-Mainer, wise in the ways of logging and sawmilling. Dudley C. Hall, the third partner, was a member of a Medford, Massachusetts, family prominent in the distilling of "Old Medford," trade with the West Indies, Holland, and France, slaughtering, and tanning. John Brooks Fenno and James A. Whitney of Boston, dry goods importers,

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[1] Most of the research for this article was done when the author was on the staff of the Forest Products History Foundation, 1946-1948.

[2] Agnes Larson, *History of the White Pine Industry in Minnesota* (Minneapolis, 1949), pp. 19-23; *Kanabec County Times*, June 28, 1934.

held a one-fourth interest together under the firm name Whitney, Fenno and Company.[3]

Stillwater, the only town of importance on the St. Croix, was already the center of a prosperous lumber business when Hersey, Staples and Company opened its books in June, 1854. The St. Croix River, broadening into a lake at Stillwater, drained a pinery in Minnesota and Wisconsin estimated at 5,440,000 acres. Tributaries of the St. Croix cut through almost every part of the pinery and carried into the boom an annual harvest of logs. From the boom the logs were distributed to the sawmill owners or rafted to various buyers along the Mississippi River.[4]

Because Stillwater was close to the pineries, was served by natural routes of transportation, was accessible to markets in which supplies could be purchased, and offered a product with a ready market, it seemed on its way to becoming a leading city in the new Territory. The editor of the *St. Croix Union* enlivened his columns with predictions of the "destiny of our thriving place." And many residents saw in their town the nucleus of a city that would dwarf neighboring St. Paul and St. Anthony.[5]

The dominance of lumber in the economy of Stillwater shows up imperfectly but definitely in the census schedules. By the time the census enumerator came around in 1857, there were 999 men working in Stillwater, almost all of them employed in the lumber industry or in the related businesses that served it. In the schedules, 283 are listed as "lumbermen," 216 as "millmen," 254 as "laborers" (not defined). The remaining 246 men are distributed among occupations such as blacksmith, carpenter, teamster, raftsman, speculator, lawyer, pilot, bookkeeper, hotel keeper, surveyor, engineer, millwright, land dealer, and wagon maker.[6]

Although Stillwater was queen on the St. Croix, hers was by no means the only location that attracted lumber manufacturers. Logging had begun on the river in 1836. Mills were built on its banks both above and below Stillwater at the Falls of the St. Croix, Marine Mills,

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[3] "A Medford Business Incident," *The Medford Historical Register*, vol. xvi, p. 26; Ruth Dame Coolidge, "Simon Tufts the Third, Merchant of India," *The Medford Historical Register*, vol. xli, p. 35; *Boston Almanac for 1856*, p. 153.

[4] Edward W. Durant, "Lumbering and Steamboating on the St. Croix River," *Minnesota Historical Collections*, vol. 10, pt. 2, pp. 645-648.

[5] *St. Croix Union*, Oct. 23, 1854.

[6] Census Schedules, Stillwater, 1857. Minnesota Historical Society.

Arcola, Osceola, Franconia, Hudson, Afton, Glenmont, and Prescott. By 1858 it was estimated that there were fifty mills in the valley of the St. Croix, including its tributaries. In the year that Hersey, Staples and Company, built its mill, eighty-two teams were at work in the pineries bringing in logs to supply mills in the valley and in other areas dependent on the St. Croix timberlands for their logs. The seventeen mills on the St. Croix alone had a capacity of 35,000,000 feet of lumber, 20,000,000 of laths, and 1,500,000 of shingles.[7]

Staples made his first trip to Stillwater in 1853 to look at land and to investigate the business opportunities of the region. When he saw the town, the pineries of the surrounding country, the lumbering already under way in the valley, and the apparently limitless potential market, he was quick to advocate the investment of the firm's capital in Stillwater. On his return East he convinced the men who came into the firm of the merits of the St. Croix Valley.

By 1854 he was back in Stillwater putting in motion the most extensive lumbering operation yet undertaken in the valley. Almost all the supplies and equipment needed by the company had to be brought to Stillwater from distant parts. Although good timberland was available, Staples had to compete with other buyers for the best sections as they came on the market. He had to recruit a labor force for woods and mill, make arrangements for marketing lumber, build a mill and a boarding house for the men who worked in the mill, organize and supply a general store, supervise the logging, driving, and sawing, and watch for other business opportunities, such as selling land warrants at a profit and buying and selling town lots.

Although the burden of management in Stillwater fell on Staples, each of the other members of the firm made contributions to the welfare of the company. Hersey did not often go to Stillwater, but nevertheless he kept in close touch with developments. On his visits, he examined the books, giving particular attention to predicting future income needed to meet periodic payments on debts owed by the company. He watched state legislation on dams and booms and federal legislation on land. He helped other members of the firm purchase supplies, sought markets for logs and lumber, located skilled workmen who would leave the East to work for the company in Stillwater, and made arrangements for insurance. From his home in Bangor, he

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[7] Durant, *op. cit.*, pp. 648-657; *St. Croix Union*, Aug. 11, 1855; *Stillwater Messenger*, Dec. 2, 1854.

wrote Staples many letters requesting detailed reports on the business. He insisted that those reports cover the purchases of land, wages of the men, performance of the mill, fire protection, the sales of logs and lumber, and the expenditure of money he and the other partners were sending out.

Although Hersey showed a natural concern about his investment, his judgments on the western business were sound. He pressed Staples to send money home, but at the same time he was alive to opportunities for reinvestment in an expansion of the business. Hersey, Staples and Company was but one of his many business enterprises, and sometimes he had to make decisions affecting the company based on extraneous factors. Since he was cautious, he often advised Staples to "furl sail" when overproduction made logs and lumber a glut on the market or when payments were made in long-term notes at a time when large cash payments owed by the company were coming due. But unlike other members of the firm, he never veered from optimism to pessimism on the basis of a single incident.[8]

Dudley C. Hall was of a more mercurial temperament. Like Hersey, he was deeply involved in other investments, many of them with his father. Once he had invested in the company, he wanted quick returns to take care of his other obligations and the elimination of every risk to his capital. Reports of disasters—and there were many of them in this frontier enterprise—alarmed him to the point of agitation. In 1858 when logs were selling slowly and Hall had expected there would be $100,000 for division, he asked Hersey to sell out his interest in Stillwater to keep him from failing. Reports of logs hung up on the rivers moved him to refuse to invest in additional lands. He was constantly in despair; but despite his dissatisfaction with the company, he remained in it and with its successor until 1866. In addition to furnishing money, he assisted the company by purchasing supplies and by selling logs and lumber.[9]

Whitney and Fenno served the company chiefly by purchasing supplies in Boston and furnishing capital. Although Hall frequently quoted them in his letters to Staples, there are few letters from these partners to show the extent of their participation in the business and

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[8] Hersey to Staples, July 26, 1856. Hersey, Staples & Co. Papers in the Minnesota Historical Society. All manuscripts referred to in the rest of this article are a part of the papers of the company.

[9] Hall to Hersey, Apr. 12, 1858; Hall to Hersey, Staples & Co., Nov. 20, 1856; Hall to Hersey, Apr. 17, 1858; Hall to Staples, May 26, 1856.

their attitude toward it. Hall indicates that they agreed with him about quick profits and minimizing risk, but he may well have used their names to strengthen his argument.

It was western timber that drew Staples to Minnesota, and throughout its history the company retained an active interest in purchasing land. By 1858 the firm owned 34,000 acres in the St. Croix Valley. Although the partners were most immediately concerned with securing a log supply for current operations, they wanted to insure the future by securing all the good timberland they could afford as it came on the market. The newspapers of the area were stating a common belief of the day: that pine was inexhaustible. But in actual practice the men lumbering in the St. Croix Valley did not subscribe to this belief. They understood the competitive aspect in land acquisition seldom taken into account by those not connected with the lumber industry or with speculation. They knew that the supply of timberland, though large, was limited, and that there were many buyers for the limited supply. From the beginning the eastern partners urged Staples to keep land lookers in the woods marking the best lots on plats before they came into the market. Their chief concern was to find out where the land was, to get the land put on the market, and to enter it ahead of their competitors and before it was reserved from entry through railroad land grants.[10]

The partners bought timberland in the name of the company, as individuals, and in association with others. Both Hersey and Staples owned land in Minnesota from which they sold logs to the company. For example, in 1856 Hersey sold to the company from his private holdings 511,839 feet of logs.[11]

Although the partners were primarily interested in assuring their log supply, they recognized the investment value in other kinds of land. They purchased woodlands (hardwoods), farm land, boom islands, waterpower and dam sites, and town lots in Stillwater, Hudson, St. Paul, Hastings, Red Wing, and Winona. They bought and sold these lands whenever there was a promise of profit. When there were rumors that a railroad would go through Hudson in 1856, the company was offered $100 an acre for 100 acres of land at that place.

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[10] A Schedule of the Property of Hersey, Staples & Co., Sept., 1858; *St. Croix Union*, Nov. 3, 1854; Hall to Hersey, Staples & Co., May 4, 1856; Hersey to Staples, June 1, 1856; Hall to Staples, Dec. 22, 1856; Hall to Hersey, Staples & Co., Aug. 21, 1856; Hersey, Staples & Co. to Hersey, Aug. 16, 1854.

[11] Schedule of logs sold, 1857.

The partners did not know whether they should sell the land for that price or hold it. If the railroad went below Willow River, missing the land, the price was tremendous. But, wrote Hall, "if the R. R. is to touch the Lake at the upper side of Willow River I would not sell at any price." Several weeks after the first offer, Hersey was asking $500 an acre for the land, and that with some misgivings. Since there is no description of the land and the transaction is never again mentioned in the extant papers, there is no information about whether or not the land was sold or what was paid for it. However, the offers made for land strategically located illustrates the profits that could be made by owners wise or fortunate in the choice of land.[12]

The company acquired a great deal of land by direct purchase under the laws of private entry and public auction. From the lists of lands, it seems that most acquisitions were made through such direct purchase from the government. The land was paid for with military bounty land warrants and with gold sent out from the East. Warrants were purchased in Boston, New York, and other markets at prices ranging from $.75 to $1.05 an acre. The more usual price paid by the company was $.90. When the partners were not in a position to invest additional money in land and yet saw a good buy in warrants, they purchased them for resale in Minnesota. In Kanabec County, an area where the company bought land heavily, 28 per cent of the land purchased was paid for with warrants and 72 per cent with cash.[13]

The company used other methods to secure land not available for direct purchase from the government. Through the laws of private entry and public auction, only lands surveyed and offered for sale could be acquired. To gain possession of lands not yet offered, the company sent men to the woods to make pre-emption claims. When the claims were proved up, the men deeded the lands to the company. Some land was purchased from other lumbermen, speculators, and farmers. A few lots were acquired as a one-fourth interest in purchases of other parties for whom the company acted as agent.[14]

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[12] Hall to Staples, Aug. 27, 1856; Hersey to Hersey, Staples & Co., Dec. 10, 1856.

[13] Hersey, Staples & Co. to Hersey, Aug. 16, 1854; Hersey, Staples & Co. to Whitney, Fenno, Shaw & Co., Aug. 8, 1854; Hersey, Staples & Co. to Hall, Jan. 28, 1856; Hersey to Staples, June 1, 1856; Hersey to Hersey, Staples & Co., June 14, 1856; Hall to Hersey, Apr. 6, 1856; Hall to Hersey, Staples & Co., May 4, 1856; Hall to Staples, June 12, 1856.

[14] Hall to Hersey, Staples & Co., Nov. 9, 1856; Hall to Hersey, Staples & Co., Aug. 21, 1856; Hall to Hersey, Staples & Co., Aug. 11, 1856; Hersey to Hersey, Staples & Co., Aug. 3, 1856; Hersey, Staples & Co. to Hersey, Jan. 16, 1856; Abstract of Title to Lands, Nov. 12, 1870.

Hersey, Staples and Company built a mill, at a reputed cost of $80,000, that was acknowledged to be the finest on the river. The partners congratulated themselves, and travelers exclaimed over the complete mechanization of the processes of lumber manufacture. The mill, propelled by steam, housed a gang saw with twenty saws in the frame, five circular saws, three upright saws, a lath machine, edgers, a shingle saw, a siding machine, and various machines for conveying lumber in different stages of manufacture around the building. By running day and night, a full twenty-four hours, the mill had the capacity to produce 75,000 board feet, but 65,000 board feet per twenty-four hours and 37,000 per twelve hours was the usual amount reported. The chief mechanical difficulty in the mill was the installation and maintenance of the boilers.[15]

Building the mill was slow work. Machinery purchased in Bangor, Boston, St. Louis, and Milwaukee was a long time in reaching Stillwater. Boilers and grate bars on order in St. Louis were held up by questions on design that had to be answered from the East rather than from Stillwater. When machinery was sent from the East by express to Galena, Illinois, in order to speed delivery, it was held up for several weeks by forwarders who were charged with facilitating its shipment up the Mississippi. In exasperation the partners questioned the wisdom of adding to transportation costs by sending machinery by express when it was delayed at forwarding points on the river. At times a man was sent with the machinery to make sure that it made the best connection at transfer points. Difficulties in getting skilled labor also contributed to the slow progress in assembling the mill. Some of the engineers and millwrights engaged in the East came out promptly and remained with the company, while others changed their minds about coming or were dismissed as unsatisfactory. Because of these slow-ups, Staples was not able to put the mill in operation until July, 1855.[16]

Information about men employed by the company is scant and un-

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[15] Hersey, Staples & Co. to Hall, June 19, 1855; Hall to Hersey, Staples & Co., Aug. 7, 1856; Hersey to Hersey, Staples & Co., Aug. 3, 1856; *St. Croix Union*, June 23, 1855. *Stillwater Messenger*, May, 1860, cited in Larson, *History of the White Pine Industry*, p. 20.

[16] Hersey, Staples & Co. to Whitney, Fenno & Co., Dec. 2, 1854; Hall to Hersey, Staples & Co., Oct. 26, 1856; Hall to Hersey, Staples & Co., Aug. 15, 1856; Hall to Hersey, Staples & Co., Aug. 8, 1856; Hall to Staples, June 20, 1856; Hersey, Staples & Co. to Hersey, June 5, 1855.

satisfactory. It is known that the firm had 215 men at work in the woods and in mill construction in 1854, scarcely a normal year. Thirty dollars a month was considered top wages for ordinary labor, while engineers and millwrights received as much as $2.50 a day. Men working at the mill were encouraged to live at the boarding house, which was closer to the mill than living quarters in Stillwater. The company charged $2.50 a week for board and lodging at the boarding house. At the mill, men were paid every Saturday. The men in the woods were given notes in March and April due in the fall when the logs were sold. If the company could get the money, it bought up the notes in the summer at a discount of 5 per cent a month. The company recruited labor in St. Paul, St. Anthony, and Stillwater, but many of the men came from the older lumbering centers in the East. Sometimes men could be engaged in the East for lower wages than those hired locally because of the difference in labor supply. In one case the company found it could hire saw filers in the East for $40 a month when men in Stillwater were asking $100 a month and board. In 1855 the payroll for men working in the woods alone was $30,000. In addition to this sum, the men had earned $4,389.15 taken on account through the purchase of supplies in the woods. Since there is little evidence on whether or not the same men were used in seasonal operations of logging, driving, rafting, and sawing, it is not possible to make observations on the stability of employment.[17]

There was no part of the lumbering operation that caused the company greater anxiety than getting the logs out of the woods to Stillwater. Hall, writing in one of his moods of despair, expressed the importance of this when he said he would much rather hear that the mill had burned than that the logs were hung up. Without the mill, the company could still bring in an income through the sale of logs. Staples watched carefully the logging and driving. After a visit to the camps and drives, he wrote long reports answering the questions of the partners on the status of the logs in the various places. The reports were necessary, for if they were not received promptly the eastern partners badgered Staples until he wrote a full account of how matters stood.[18]

[17] Hersey, Staples & Co. to Whitney, Fenno & Co., June 26, 1855; Hersey, Staples & Co. to Asa Davis, Nov. 6, 1854; Hall to Hersey, May 4, 1858; Hersey, Staples & Co. to Hall, Feb. 14, 1855; Hersey, Staples & Co. to Hersey, May 31, 1855; Hersey, Staples & Co. to Hall, Dec. 7, 1854; Hersey, Staples & Co. to Hersey, Aug. 31, 1854; Hall to Hersey, Staples & Co., Mar. 24, 1856.

[18] Hall to Staples, May 26, 1856.

Logging was usually done by outfits owned by the company and by others in which the company had an interest. In 1855 nine teams owned by men other than the partners were logging. The usual arrangement was for the company to supply the outfits at a 20 per cent markup from Stillwater prices and to receive one third of the net profits. Although the system had advantages in decreasing the number of teams and amount of equipment the company had to buy, the disadvantages in keeping the accounts straight were so great that most of the arrangements were discontinued. Hall came to Stillwater in 1855 expressly to dissolve the agreements with noncompany outfits. Logging was done with both oxen and horses, horses becoming more common in the 'sixties. In 1854 the company had in the woods two four-horse teams and twelve six-ox teams. The company, and most of the other lumbermen on the river, reduced the number of horses and oxen in a team and increased the number of teams for greater advantage in hauling logs.

There is no complete set of statistics for the logs cut in the 1854-1860 period; however, the report of a cut of 15,000,000 feet in 1855 and 10,476,320 feet in 1858 gives some indication of the volume. The cut was influenced by current market prices and by the estimate of probable log supply on rivers flowing into the Mississippi. The company bore a heavy expense on the logs before they ever started for market. In 1856 Hersey estimated that the logs on the Ground House River (number not specified) would cost the company almost \$16,000—\$9,400 for the winter's work of the men, \$2,500 to drive, \$1,500 for boomage, and \$2,500 for rafting and running from the boom in preparation for the trip down-river.[19]

The controlling factor in log delivery was the amount of water in the streams and rivers that formed the avenue to Stillwater. At times men in charge of the drives had to discharge their crews because the company could not afford to pay their wages while they sat around waiting for the water to rise to driving level. Sometimes the company made use of the crews in the waiting period by having them cut hay

[19] Hall to Hersey, Staples & Co., Dec. 23, 1856; Hersey, Staples & Co. to Hall, Oct. 28, 1855; Hersey, Staples & Co. to Hall, Dec. 7, 1854; Hersey, Staples & Co. to Hersey, Apr. 19, 1858; Hersey, Staples & Co. to Whitney, Fenno & Co., Mar. 20, 1855; Hersey to [n.n.] Apr. 12, 1856.

and plant gardens of potatoes, beans, and turnips for the next season's logging.[20]

On some of the rivers, the best use was made of available water by constructing dams. The company built a dam on the Apple River with other lumbermen associated in the Apple River Dam Company. This company received its charter from the Wisconsin legislature in 1856 and was ready for sluicing logs in 1857. Hersey, Staples and Company held a one-fourth interest in the dam and was represented on the board of directors by Staples. Such dams were expensive to maintain. In 1858 the owners of the Apple River Dam paid $750 to put the dam in running order.[21]

After the logs came out of the tributaries, they went down the main St. Croix into a boom where they were sorted, and, if they were going to markets down-river, rafted. The St. Croix Boom Company was organized in 1851 by some of the lumbermen who had logs coming into Lake St. Croix. Staples had not been in Stillwater a year when a lumberman asked him to help secure revisions in boom legislation in the legislature. The company agreed to invest $2,000 or $3,000 in boom shares in 1855, and from that time on the partners participated in the management of the St. Croix Boom Company. Staples in particular was active in the reorganization of the boom company in 1856, in buying supplies for the boom, and in other phases of the business. In 1859 Hersey, Staples and Company owned 40 shares of boom stock and was contemplating the purchase of 34 additional shares. The boom company charged a boomage of 65 cents per thousand feet if the warp were returned or 75 cents per thousand feet if the warp were not returned.[22]

Since the company was always pressed to secure money for payment of notes and accounts coming due, a quick sale of logs and lumber was essential. Logs held at Stillwater were taken to the mill for sawing as they were needed. Logs going down-river were rafted and sent out as quickly as market conditions permitted. The proportion of logs scheduled for marketing depended on prices and opportunities

[20] Hersey, Staples & Co. to Hersey, July 11, 1855; Hersey, Staples & Co. to Hersey, May 15, 1855.

[21] Hersey, Staples & Co. to Hersey, July 11, 1855; Hersey, Staples & Co. to Hersey, Mar. 17, 1858; Charter, Apple River Dam Co., 1856.

[22] Staples to Hersey, Dec. 2, 1854; Hersey, Staples & Co. to Hall, Feb. 14, 1855; Hersey, Staples & Co. to Schulenburg, Boeckler & Co., Jan. 1, 1856; Hersey, Staples & Co. to Hersey, Jan. 11, 1856; Staples to Hersey, Apr. 2, 1859.

for sale. If milling costs were high and the difference between the price of logs and lumber was not great enough to cover the milling costs with a profit, the partners tried to sell logs rather than manufacture lumber. In 1856, a fairly normal year, the company planned to saw 8,000,000 feet of logs and sell 7,000,000 to other mills.[23]

To reduce or eliminate transportation costs on lumber, the company tried to sell as much lumber as possible locally. Lumber was sold at the mill for $16 and $17 per thousand feet when the same grade was marketed down-river at $20 because of the transportation differential. Lumber was sold directly to the consumers and through other retailers at Stillwater, St. Paul, Prescott, Hastings, Red Wing, Lake City, and in the valley of the Minnesota River when that area opened up in the middle 'fifties. However, the local market by no means absorbed the output in any year. By far the greater quantity went down the Mississippi River to McGregor, Dubuque, Galena, Davenport, Muscatine, Keithsburg, Hannibal, and St. Louis.[24]

Only a small part of the story of how the company marketed logs and lumber is revealed in the records. The few documents that do relate to marketing indicate that in these early years the company sold logs and lumber by any means that it could. Members of the firm, Samuel F. Hersey in particular, traveled up and down the Mississippi selling rafts on their way down the river or those awaiting sale already tied up at towns along the river. Rafts were also consigned to commission men who sold them for the company. One commission man, Fuller of Fuller & Treat, sold company lumber to retail yards and also provided an outlet at his own yards at Muscatine and Davenport. Although pilots were sometimes empowered to sell logs and lumber wherever they could, the practice was not common. Slow communications caused too many misunderstandings among pilots, commission men, and the company about which rafts had been sold.[25]

As early as 1855 members of the firm were searching for good places for retail yards and for men with whom they could make arrangements to take charge of the yards. Between 1854 and 1861, the company had selling arrangements or owned yards, either in part or in full, at

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[23] Hersey, Staples & Co. to Hersey, Sept. 3, 1855; Hall to Staples, June 5, 1856.

[24] Hersey, Staples & Co. to Hersey, July 11, 1855; *Kanabec County Times*, Golden Anniversary Edition, June 28, 1934; Hersey, Staples & Co. to Hall, Aug. 6, 1855.

[25] Hersey, Staples & Co. to Hersey, Apr. 7, 1858; Hall to Hersey, Staples & Co., Aug. 30, 1856; Hersey to Staples, July 4, 1856; Hersey to Hersey, Staples & Co., June 14, 1856; Hersey, Staples & Co. to Whitney, Fenno & Co., Aug. 18, 1855.

St. Paul, Prescott, Hastings, Red Wing, Winona, McGregor, Dubuque, Muscatine, and Keithsburg. Most of the operators of the yards had some capital invested and shared in the profits on a percentage basis.

Since only three of the Hersey, Staples and Company agreements with dealers and managers are extant, there is no opportunity for a broad comparison. The agreement with W. D. Smith, operator of a retail yard at Keithsburg, provided for Smith's receiving 8 per cent commission on gross sales. Another agreement, made with Hatch, White & Company, wholesale and retail dealers in lumber, provided that the South Muscatine Yard should store lumber sent by the company rent-free, pay taxes on the lumber for the company, sell for 5 per cent commission, and guarantee sales made on credit. It is not clear from the agreement whether or not Hersey, Staples and Company had invested money in the buildings and equipment of this yard. An agreement with an operator at Hastings stated that the operator was to have 20 per cent of the profits. Again there is no indication of the amount of capital invested by the operator and the firm. In 1862 after Hersey, Staples and Company was reorganized as Hersey, Staples, and Hall, a more explicit agreement was made with Baldwin & Averill of Lake City The agreement provided that Hersey, Staples, and Hall deliver lumber at stated prices, that Baldwin & Averill pay all the expenses of selling, that Hersey, Staples, and Hall pay Baldwin & Averill 60 cents per thousand feet for handling the lumber, 60 cents for pickets, $11 for laths, 10 cents for shingles, plus "6 per cent for selling."[26]

Accounts sent by Smith to Staples describe the business of a retail yard. Smith received his lumber, shingles, and pickets from E. W. Durant, who rafted them down the Mississippi for the company. One raft of 65 cribs lasted Smith from October through the winter. From May through October in 1859, Smith had taken in the following amounts: May, $475.17; June, $927.52; July, $225.00; August and September, $927.38; October, $1,548.62. Part of the sales were on short-term credit, the October bills coming due on January 1. Smith sent part of the company's share of the money East and part to Stillwater. In October, 1859, he had sent the company $500 and was get-

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[26] Account of Hersey, Staples & Co. Property, Sept., 1858; Agreement, W. D. Smith with Hersey, Staples & Co., Nov. 5, 1858; Agreement, Hatch, White & Co., with Hersey, Staples & Co., Nov. 11, 1858; Hersey to Staples, Nov. 7, 1856; Agreement with Baldwin & Averill, 1862.

ting ready to send an additional $300. He secured his exchange for 3/4 per cent by giving money to Keithsburg merchants who got the exchange from their commission men in St. Louis. Smith paid for some of the lumber received from the company by sending to Stillwater supplies he took in on lumber accounts.[27]

At times between 1855 and 1859, the difference between prices offered for logs and lumber was not great enough to pay the cost of sawing. During the depression of 1857 the company seriously considered shutting down the mill when only $13 per thousand was offered for lumber. Many times the prices of logs and lumber were almost the same. In 1855 lumber was sold at Davenport for $18 and logs at $16, a difference that would not take care of the $3.00 cost of sawing. Lumber in the same year was selling for $16 at the mill. The prices of lumber commonly ranged between $16 and $20; and the prices of logs between $12 and $13.[28]

The company was anxious to sell logs and lumber quickly for cash, even if it meant some reduction in price. When the partners on one occasion were faced with a decision of whether to sell logs and lumber or wait another year, they sold to stop payment of interest on money they owed in the East. Hall estimated that if they tied up unsold logs to wait for a better price the next year, interest on their unpaid debts would amount to $1.00 per thousand. In many of their sales, the partners secured cash in part and extended credit for the remainder. In 1856 logs sold for $12 were paid for partly in cash and partly in notes running seven and eight months with 8 per cent interest. A raft of logs taken down the Mississippi by Joe Perro in 1856 sold for $13.50 cash and $14 on time. The partners then figured that even if they had sold the raft for $13 per thousand, the price was as good as $15 the following year. Interest rates were usually from 8 to 12 per cent and the term of payment 3 to 9 months. When the market was glutted with logs, the company had to sell on time with no allowance for interest.[29]

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[27] Smith to Hersey, Oct. 4, 1859; Smith to Hersey, Oct. 31, 1859; Report on Sales at Keithsburg Yard, 1859.

[28] Hersey, Staples & Co. to Hersey, July 11, 1855; Hersey, Staples & Co. to Hersey, Sept. 3, 1855; Hall to Hersey, Staples & Co., Oct. 12, 1856; Hersey, Staples & Co. to Charles Boynton, July 23, 1855; Hersey to Hersey, Staples & Co., May 18, 1857.

[29] Hall to Hersey, Apr. 5, 1858; Hall to Hersey, Oct. 28, 1856; Hall to Staples, July 22, 1856; Statement of Logs Purchased by the Laird, Norton Co., 1857.

The company depended on income from the store owned by the partnership to take care of minor expenses like freight bills after the big payments for the year had been made. The store carried a wide variety of dry goods, groceries, cutlery, crockery, hardware, and woods equipment. The managers also carried on an Indian trade, exchanging goods from the store for hides and furs. Although many other cities furnished supplies, goods were purchased largely in Boston where Whitney, Fenno, & Company, the merchants in the partnership, made the arrangements. Goods were advertised in the *St. Croix Union* as coming from Boston. Although the company tried to sell for cash, bills ran up to $12,000 in 1856. Hersey advised the managers of the store to make it known that the store sold for lower price for cash, then cut the cash prices to a point where the store would make only a 25 per cent net profit. Weekly income from the store varied over several years from $78 to $250.[30]

When Whitney died in 1860, Hersey, Staples and Company closed its books. The business had been large for its time and place, boasting a remarkable sawmill, fine equipment, and a large supply of timber. Despite natural and man-made hazards to the business, the company realized a gross income of over $100,000 a year (figures are not available on net income). Expenses were heavy, particularly for freight, labor, supplies, transportation and interest.

Although the partners considered the return on their investment small, the remaining members, with the exception of Fenno, formed a new company in 1861 to carry on the business. Hersey, Staples, and Hall operated as a company until 1866, when Hall withdrew. This company was followed by Hersey, Staples and Bean, and finally by Hersey and Bean. The last company in the succession closed out in 1900, when lumbering itself was dying in Stillwater. The successor firms expanded lumber production and improved marketing facilities; the partners in the firms interested themselves in banking, transportation, and land.

New producing areas like Duluth and Minneapolis, and new names like Frederick Weyerhaeuser and T. B. Walker, dimmed the luster of the company name that once evoked proud comment from Minne-

[30] *St. Croix Union*, Nov. 25, 1854; *Stillwater Messenger*, Feb. 7, 1860; Hersey to Staples, June 3, 1856; Hersey, Staples & Co. to Hall, June 14, 1856; Hersey, Staples & Co. to Martin Bates, Oct. 24, 1854; Hersey, Staples & Co. to Hersey, Dec. 5, 1854; Hersey, Staples & Co. to Hall, Aug. 6, 1855; Hersey to Hersey, Staples & Co., May 21, 1856.

sotans. However, the importance of Hersey, Staples and Company in the history of American business lies not in its once-vaunted size, nor in the fleeting fame of the partners: It is important because through it one can understand a little better the organization and operation of hundreds of similar businesses that in the nineteenth century contributed to the growth of the nation.

LUCILE M. KANE
Minnesota Historical Society

THE SHELBY IRON WORKS COLLECTION IN THE UNIVERSITY OF ALABAMA LIBRARY

Jonathan Ware, an ironmaster from Lynn, Massachusetts, settled in central Alabama in 1825 and was for some years active in the iron business. In the 1840's his son, Horace Ware, established the Shelby Iron Company and with the financial help of a friendly planter erected a blast furnace at the village of Shelby, in Shelby County. The furnace was put in blast late in the decade and operated for a number of years without benefit of rail transportation.

The demand for iron brought on by the Civil War caused Ware to seek new capital. With six planters and businessmen as associates, he formed a corporation in April, 1862, and prepared for greatly expanded operations. Voluminous and detailed records of the business from that date forward are found in the Shelby Iron Works Collection in the University of Alabama Library, where they fill two rooms.

Through the year 1862 there was intensive bickering between the company and the Confederate government over the terms of contracts and other matters. During the year the company pushed the expansion of the existing furnace, the construction of a new furnace, and the enlargement of Ware's somewhat dilapidated rolling mill.

Skilled white labor was recruited from all over the South. Turnover was rapid, and a constant battle was waged with Confederate authorities over the conscription of workmen. Many skilled men were detailed from the army to work at Shelby. However, most of the workmen were Negro slaves, of whom about 10 per cent were owned by the company and the rest rented. Some of the Negroes were skilled hands. The Shelby collection contains very extensive records relating to these matters.

The company employed purchasing agents who ranged throughout the southernmost states of the Confederacy to procure food and clothing for the working force and supplies for the maintenance of production. They had an arduous time battling with scarcities, thefts, transportation problems, government priorities, and inflation. Their problems were often settled by barter deals of one sort or another. A great many letters in the Shelby collection illuminate these and other problems of operating a war industry in the Confederacy.

The company's experiences with conscription and priorities and with price and production controls remind one of production problems during World War II. There was even a sort of renegotiation of contracts.

The company produced charcoal pig iron and rolled bars and plates to order. After completion of a second new furnace in 1864 the output of iron increased so as to rival that of the famed Tredegar Iron Works at Richmond, and company employment reached a peak in 1865 of some 450 Negroes and 100 white men.

Conflict with the Confederate government was constant through 1863 and 1864. Over violent official protest the company completed a desperately needed six-mile railroad line in January, 1865, to connect its furnaces with the main railroad line at Columbiana. However, by late 1864 relations with the government had begun to improve.

Expansion of the company's activities and the effects of inflation brought a need for more capital at a time when profits were being squeezed by rising costs and rigidly controlled selling prices for iron. A solution of the difficulty was found in the sale of new stock to several capitalists in the state. As a result of this action Sam Tate, a builder of railroads in Alabama, became the head of the company in 1864.

On March 31, 1865, a detachment of federal troops destroyed the machinery of the Shelby Iron Works, but happily the records survived and are available practically complete up to that point in the Shelby collection.

The company was not bankrupted by the destruction of the war, and its directors made plans for reconstruction of the works. Lacking capital, however, and being unable to raise enough in the economically prostrate southern states, the directors induced northern interests headed by David W. Wetmore to purchase stock and make a substantial loan, at the price of yielding a controlling interest to the northerners. By 1868 reconstruction was being actively pushed.

The company thereafter led no such hectic existence as it had during the Civil War period. By 1872 two furnaces were turning out charcoal iron. An unusually high grade of brown ore came from the company's own open-pit mine. There were ups and downs of prosperity and depression, but in general the company prospered modestly. The earnings were largely ploughed back, and only three dividends were paid before 1890. The southern market for iron proving inadequate, the company had to send a large part of its heavy product north of the Ohio river to find a market, in competition with iron produced

much closer by. The company had an important advantage in the especially high quality of its product, which was prized as "car-wheel iron."

In 1890 the Shelby Iron Company was bought out and absorbed by the Alabama Coal and Iron Company, a New Jersey corporation organized by New York and Hartford interests for the purpose. After a brief time the new company took on the name of Shelby Iron Company of New Jersey. Although modest dividends were paid fairly regularly through 1911, the Shelby enterprise appears to have passed its zenith long before that time. Production of charcoal was being made more expensive by the receding of the forests, and buyers willing to pay the necessary premium for warm-blast charcoal iron were evidently becoming fewer. The Shelby company was at a disadvantage, too, in competing with the new furnaces in the Birmingham district, close to good coking coal, iron ore, and limestone and well-served by railroads.

During World War I both Shelby furnaces were used, but after the armistice production was drastically reduced. The last iron of Shelby was produced in August, 1923. In 1929 the furnaces were sold for scrap, and in 1930 the work of dismantling was completed. The corporation continued in existence for some years until it had disposed of its ore and timber lands and other property.

The extant records of the Shelby company are remarkable for their completeness from 1862 to 1890. For later dates they are somewhat less satisfactory. Bound volumes of minutes cover the meetings of stockholders and directors from 1862 to 1890, and there are in the collections miscellaneous papers and reports relating to the subsequent meetings. The general books of account appear to be complete from 1862. Subsidiary account books and memoranda are very numerous. The furnace record books give details of furnace charges, operation, and product. Time books and payroll records give details of employment in each department, such as furnace, foundry, blacksmith shop, wheelwright shop, coalings (charcoal workings), wagons and teams, and "floating gang." Five books record cars of charcoal received by rail from various sources and throw light upon this branch of the business. Some records show merchandise received and others show details of each shipment of iron. Commissary records, beginning in 1868, tell the story of the operation of the company store, and toll books and other records give details of the operation of the grist mill. There are also records of the Shelby Manufacturing and Improvement

Company, a subsidiary corporation, which in 1890 took over the company's real-estate business.

Perhaps the most striking feature of the Shelby collection is the vast accumulation of letters relating to the company's business, numbering in the tens of thousands; these make possible exhaustive analyses of the company's affairs.

The account books are not fully cataloged but are arranged as the company bookkeeper presumably kept them and are easy of access. The letters are filed by years and have not yet been put into more precise chronological order or otherwise classified. All in all, the collection offers excellent opportunities for research in business history.[1]

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[1] Several students have done research in the Shelby Iron Company's records. Completed works include Frank E. Vandiver, "The Shelby Iron Company in the Civil War: A Study of a Confederate Industry," in *Alabama Review*, vol. i (1948), pp. 12-26, 111-127, 203-217; Joyce Jackson, "History of the Shelby Iron Company, 1862-1868," unpublished master's thesis, University of Alabama, 1948; and Woodham Wendell Cauley, "A Study of the Accounting Records of the Shelby Iron Company," unpublished master's thesis, University of Alabama, 1949.

THE BEVERLY COTTON MANUFACTORY: OR SOME NEW LIGHT ON AN EARLY COTTON MILL

Introduction: A Note on the Sources

Although the Beverly Cotton Manufactory and its records disappeared without a trace more than a century ago, it has received an honored place in almost all the subsequent histories of manufacturing. The reason for this interest is suggested by the title of the most complete account of the Manufactory, Robert S. Rantoul's "The First Cotton Mill in America."[1] The present writer is more interested in how the mill came into being and how it functioned, than in the controversy as to whether Beverly, or Worcester, or Philadelphia, or South Carolina is entitled to claim the earliest cotton mill; however, as a native of Beverly he will have something to say on this subject at the end of the article. Recent discoveries at the Rhode Island Historical Society, the Massachusetts State Archives, and the Beverly City Hall help to fill out the basic documents used by Rantoul and all subsequent writers. The most significant of these basic documents relates to the incorporation of the Manufactory in 1789 and the succeeding petitions to the State Legislature for aid. Curiously, one petition seems to have been overlooked by all the writers on the subject; it will be printed in an appendix to this article, thus completing the publication of the basic documents. Additional source materials quoted by Rantoul include two letters from George Cabot, one of the Proprietors, to Benjamin Goodhue, Member of Congress, and one letter from Cabot to Alexander Hamilton. The letter from Moses Brown of Providence to Moses Brown of Beverly, another of the Proprietors (incidentally, they were no relation), seems to have dis-

[1] Reprinted from the *Historical Collections of the Essex Institute*, vol. xxxiii, 1898. The addenda include the Act of Incorporation of Feb. 3, 1789; the Petition of June 2, 1790; an Act for a Lottery, June 24, 1790; a Resolve granting lottery tickets, Mar. 4, 1791; the entry from Washington's Diary for Friday, Oct. 30, 1789; letter from George Cabot to Benjamin Goodhue, Mar. 16, 1790; a portion of the letter from Cabot to Goodhue, Apr. 6, 1790; letter from George Cabot to Alexander Hamilton, Sept. 6, 1791; and (copied from Batchelder) the Resolve for encouraging the Manufactory, Feb. 17, 1789. The Cabot letters were originally published in Henry Cabot Lodge's *Life and Letters of George Cabot* (Boston, 1877).

appeared, after being quoted by Rantoul and Samuel Batchelder;[2] its loss is of concern mainly to those who would prove the Beverly Manufactory the earliest. The famous entry in George Washington's Diary about the Manufactory has been printed frequently;[3] more numerous entries in the Diary of Reverend William Bentley, of Salem, are less well-known.[4] References to the Salem newspapers and to the reminiscences of old-timers round out the earlier accounts.[5] From these, and from such additional sources as have been uncovered, a more modern appraisal of the Manufactory may now be made. Although this account cannot yet pretend to completeness, it will suggest lines of inquiry for those who wish to pursue the subject further.

Background and Early Years of the Firm

In the years immediately following the Revolution all patriotic Americans were anxious to make this country economically self-sufficient. They were hampered partly by a lack of knowledge of the factory system and of the new machines coming into use abroad, especially in England. The steps which Massachusetts took to overcome this lack are of particular interest to this story. In November, 1786, the Legislature granted £200 to the brothers Barr, two Scotch weavers and machinists, working at Bridgewater under the patronage

[2] Samuel Batchelder, *Introduction and Early Progress of the Cotton Manufacture in the United States* (Boston, 1863), pp. 26-33.

[3] Rantoul, *op. cit.*, p. 33.

[4] *The Diary of William Bentley, D.D., Pastor of the East Church* (4 vols.; Salem, 1905-1914). Entries for Sept. 24, 1790; Aug. 23, 1791; Jan. 16, 1793; May 24, 1794; Aug. 12, 1795; Oct. 10, 1796; Sept. 9, 1797. Other diary entries relating to the Cotton Manufactory include Warville du Brissot, *New Travels in the United States* (2d ed.; London, 1794, entry for Oct., 1788); Diary of John Jeffries, MS copy, Massachusetts Historical Society, entry for Aug. 19, 1790; Henry Wansey, *The Journal of an Excursion to the United States of North America in the Summer of 1794* (Salisbury, 1796; entry for May 31, 1794, p. 84).

[5] *Salem Mercury*, Apr. 22, 1788; May 6, 1788; Jan. 6, 1789; Nov. 3, 1789; Dec. 1, 1789 (advertisements); *Salem Gazette*, Oct. 14, 1828; *Essex Register*, Oct. 16, 1828. Boston newspapers, such as the *Massachusetts Centinel* and *Columbian Centinel*, frequently copied items from the Salem papers.

The recollections of Mrs. Betsy Balch Grant appeared in the *Boston Traveller* (dispatch from Beverly, Feb. 12, 1863) and the *Boston Journal* (dispatch from Beverly, July 18, 1861). Copies of these are in the Beverly Historical Society, as well as a letter from Abram Caldwell to Robert S. Rantoul, Feb. 9, 1893, and from William H. Grant to A. A. Galloupe, Feb. 10, 1893. Joshua Herrick's letter to Samuel Batchelder is quoted in William R. Bagnall, *The Textile Industries of the United States* (Cambridge, 1893), vol. i, pp. 98-99.

of Hugh Orr. (The latter came to this country from Scotland in 1740, settled in Bridgewater, and set up a foundry for making firearms.)

The textile machines developed by the Barrs were known as the States Models, but seem not to have been put into actual operation. Copies of these models found their way to the firm of Almy & Brown of Pawtucket, in which Moses Brown was interested.[6] Although the spinning frame at least may have been modeled on an Arkwright machine, it was very imperfect; it was not until 1790, when Samuel Slater came to Pawtucket, that the machine was perfected for the use of water power. Meanwhile, Thomas Somers, of whom we shall hear more, came to Baltimore in 1785. Learning of the interest in the manufacture of textiles, he returned to England at his own expense to obtain models and plans of the necessary machines. When he arrived back in Baltimore, he found little encouragement there, so he journeyed to Boston, being shipwrecked on Cape Cod en route. Arriving in Boston, he petitioned the Legislature for assistance; in March, 1787, he was granted £20, with Hugh Orr as the intermediary. Thus the necessary machinery, though imperfect, was gradually being fashioned; what was now needed was capital, and the energy of a few promoters, to start a pilot plant.

Capital and energy were not lacking in Beverly, one of the leading seaports in Massachusetts. Merchants such as the Cabots had prospered from their privateering during the Revolution and had resumed trade with Europe and the West and East Indies on a large scale. Such family firms as Moses Brown and his brother-in-law, Israel Thorndike, John and Andrew Cabot, and George Cabot and his brother-in-law, Joseph Lee, were doing a thriving import-export business. These men occupied comfortable homes along the town's main street, served together in town and state affairs, and naturally worked together when it came to financing a cotton mill. Israel Thorndike was a member of the Massachusetts House of Representatives in 1788, the very year that the incorporation of the Cotton Manufactory

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[6] The Moses Brown papers at the Rhode Island Historical Society contain letters from John Bailey, Jr., dated Hanover (Mass.), May 18 and Nov. 20, 1788, in which he states that he has visited Orr, inspected the machines, and is sending two spinning frames. A jenny and a carding machine in use by Almy & Brown were copied from the Beverly models; see William R. Bagnall, *Samuel Slater and the Early Development of the Cotton Manufacture in the United States* (Middletown, Conn., 1890), pp. 33-34. The writer is indebted to Clarkson R. Collins for several references to the Moses Brown Papers.

was proposed; John Cabot served in the same position in 1792; George Cabot was in the United States Senate from 1791 to 1796. Politically they were, in general, Federalists; George Cabot in particular was a good friend of Washington and Hamilton.

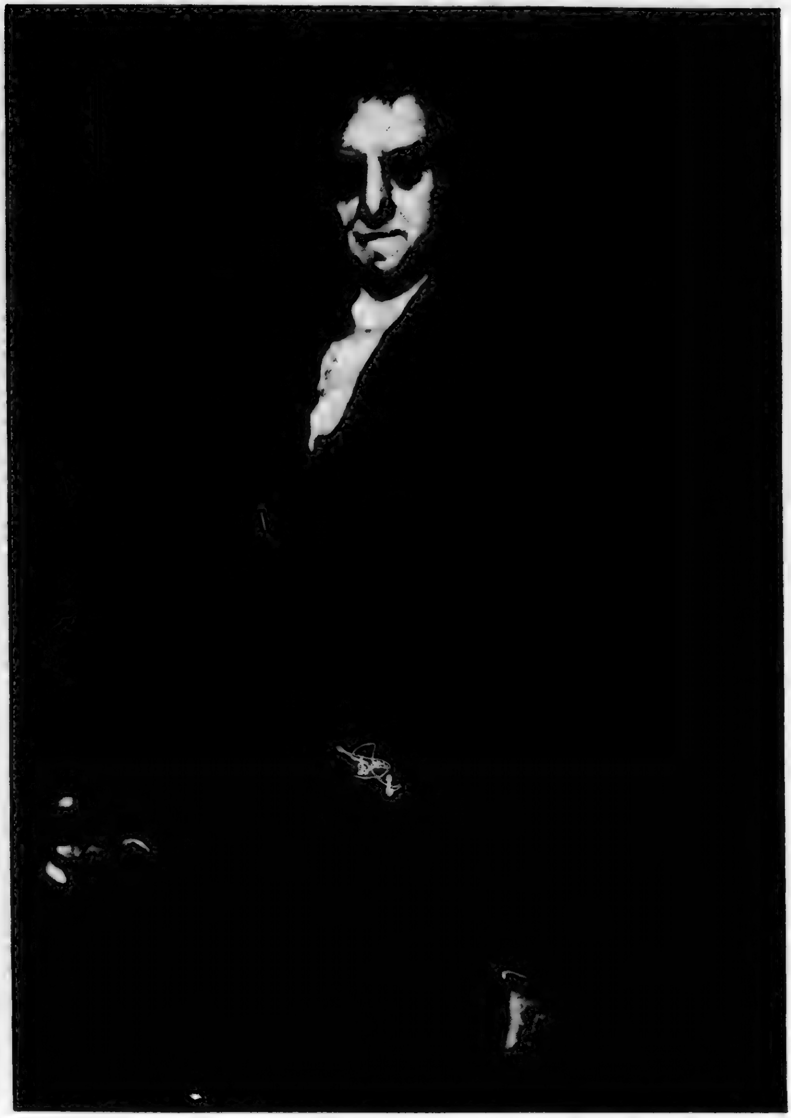
It is now difficult to determine just what impelled these men to experiment with the manufacture of cotton cloth. Their petitions for incorporation and for state aid naturally emphasize the patriotic motive, the freedom from dependency on foreign manufactures, the provision of work for widows and orphans, even an increase in the sale of fish, as exchange for cotton. One supposes they expected a profit; perhaps not directly at first, but indirectly, since their ships would be bringing in the cotton and taking out some of the finished product; and what would benefit the town would also work to their benefit. From the wording of the land grant made by the Legislature in 1789, it appears that the Cabot incorporators (including the brothers George, Andrew, and John; their sister-in-law and cousin, Deborah Higginson Cabot,[7] and Henry Higginson, Deborah's brother) held 22 fortieths;[8] Joshua Fisher, Beverly patriot and doctor, held 9 fortieths; Moses Brown and his partner, Israel Thorndike, 4 fortieths each; and Isaac Chapman, who seems to have dealt in hardware, 1 fortieth. Of the group, John Cabot and Joshua Fisher held the most stock, totaling 19 fortieths, and they acted as managers of the Manufactory. All were from Beverly, except Henry Higginson, who lived in Boston.[9] By August, 1790, assessments totaling £3,000 had been made.

The two managers and their associates had a considerable task ahead of them: the finding of men who could design the machines, the making of the machines, the selecting of a site, building the factory; all this, when such activities were relatively untried. In his letter to

[7] Deborah's first husband, Stephen Cabot, died in 1778; in 1793 she became Joseph Lee's second wife. See L. Vernon Briggs, *History and Genealogy of the Cabot Family, 1475-1927* (2 vols.; Boston, 1927).

[8] Among the Cabots, John held 10 fortieths; George, 4; Andrew, 2; Deborah, 2; Henry Higginson, 4.

[9] Information about many of these men is to be found in Edwin M. Stone's *History of Beverly* (Boston, 1843), pp. 123-149, 160-166. Dr. Fisher was an especially colorful figure; serving as a surgeon on a privateer during the Revolution, he was captured but made his escape. He was later president of the Massachusetts Medical Society and of the Beverly Bank. He graduated from Harvard in 1766, John Cabot in 1763, and Moses Brown in 1768. George Cabot was a member of the Class of 1770, but did not graduate; however, he received an honorary degree in 1779.



PORTRAIT OF DR. JOSHUA FISHER BY AN UNIDENTIFIED ARTIST

From the original in the Beverly Historical Society
Eric Muller, Lynn, Massachusetts, photographer.

Benjamin Goodhue, George Cabot states that they began the undertaking in October, 1787. Experiments may even have been conducted before this, for the Book of Clearances for the Port of Beverly indicates that cotton was being imported as early as March, 1785.[10] Furthermore, on November 23, 1787, 1 box of "coarse woolen and linnen cloth here manufactured" was shipped to Maryland, and on December 11, 1787, "1 piece coarse check'd cloath here made" was shipped to the Cape de Verde Islands.[11] Whether this represented simply the presence of manufactures in the home it would now be difficult to say. It is probable that the "foreign artists," Thomas Somers and James Leonard, came to Beverly in the fall of 1787. The *Salem Mercury* for May 6, 1788, gives George Cabot the credit for persuading them to help start a cotton manufactury in Beverly; certainly he was the most prominent of the group of incorporators. Work had progressed so far by April, 1788, that the *Salem Mercury* (of April 22) could report that the machinery, consisting of a spinning jenny, a carding machine, warping machine, and other tools, was complete.

It is not known where this early machinery was made, but there were many iron foundries in Massachusetts, especially in the area south of Boston; some of it may have been made in Beverly. These early machines were expensive (for instance, accounts accompanying the petition of 1791 state that the carding machine cost £400, but that "a new one of a better construction made in this town would cost only £60"); and there was the likelihood that competitors would reap the benefit of reduced costs of later models. These difficulties are illustrated in a letter from Moses Brown, of Providence, to the cotton manufacturers at Worcester, dated April 28, 1789; having inquired about a singeing plate or cylinder for them he writes:

> . . . but on our journey I was at the furnace where the beaverly plate was cast and saw the pattern and conversed with the clerk and obtained his leave to Borrow the pattern. . . . As to cutting knives, which is found very difficult to temper, and is considered by the beaverly Workmen as a great Secret, having accidentally fallen in with the maker of theirs should you stand in need I will inform you where you may have them made by their Workmen. They refused letting me see their Knives or the operation of cutting tho' simple as it is.

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[10] This came from Savannah, whereas the cotton later used came from India. Five bales of cotton were imported on the Brigantine *Fanny*.

[11] Schooner *Lucy* (Nov. 23); Schooner *Jack* (Dec. 11). The writer is indebted to Miss Alice G. Lapham for several references to the shipping papers in the Beverly Historical Society.

Brown, favoring a free exchange of ideas, was on the side of the angels, but one cannot help sympathizing with the Beverly incorporators.[12] The predecessors of Almy & Brown themselves obtained models of a jenny and carding machine from Beverly, and one at least of the Beverly workmen, as we shall see, went to Pawtucket.

Although work was in progress, the Beverly Manufactory still did not have a permanent home. At least it was not until August 18, 1788, that John Cabot and Joshua Fisher purchased from Josiah and Hannah Batchelder five or six acres of land lying on "the road from Mr. Oliver's meeting house to Beverly ferry"; the price was £80 5s. One wonders why they chose this site, at the junction of the Old Bay Road and the road to Haverhill, in the Upper Parish (now North Beverly). The nearest water today is a stagnant pond, perhaps a hundred yards away; and although the *Salem Mercury*, in describing the machinery, states, "part of which go by water," it is likely that horses furnished the only power. Simeon Baker's tavern was in front of the mill buildings, at the apex of the triangle, but one doubts whether this was an inducement. It may just have been that the owners wanted the mill out of town, yet not too far removed, and adjacent to the labor supply.

Here they had constructed a plain three-story building of brick, measuring about 60 by 25 feet, with a pitching shingled roof, and a deep basement. In the northwesterly corner of the lot stood a small wooden dye house, and between the factory and Ipswich Road was a well. The accounts accompanying the petition of 1789 indicate a cost of £850 for the factory and land, and of £150 for the dye house and its utensils. The *Salem Mercury*, of November 3, 1789, in describing Washington's visit to the mill, gives a good description of the building itself:

> He was shown, in the lower story, a jenny of eighty-four spindles upon which some of the manufacturers were spinning warp; and three or four other jennies upon which they were spinning weft; and about a dozen looms, upon which they were weaving cotton denim, thicksett, corduroys, velveret, etc. In the middle story were seen a roping jenny of forty-two spindles and a machine on which a person usually doubles and twists in a day a cotton warp of fifty yards. In the upper story were exhibited the business of carding, warping, and cutting; and in a contiguous building that of dressing on the stove.

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[12] Almy & Brown in 1807 refused admittance to Isaac Briggs, prospective cotton manufacturer, on a tour of inspection. See Briggs' notebooks, now in the Maryland Historical Society.

Bentley's account of his visit on September 24, 1790, is also of interest for its description of the machinery in operation:

> I stopped in Beverly at the Manufactory, and soon afterwards was joined by our member Mr. Goodhue and two Gentlemen from Connecticut, Judge Ailsbury of the Senate, and Sherman of the House. Two Jennies were at work below, which carried about 70 spindles each. Several looms were at work, and the remarkable circumstance to us was the moving the shuttle by Springs, which gives great velocity, and allows the greatest number of strokes. Above all the carding machine was most curious as it was different from all our observations. Two large cylinders of two feet diameter move in contact, and upon them other cylinders of different diameters, and these are covered with fine cards. These convey the wool when carded to a knife which cuts it and to a smooth cylinder whose upper service is made to assume as many projections as correspond to the operations of the knife, and bring away the carded wool. The specimens of the cloth were various and good. The carding machine cards fifteen pounds of wool in a day easily, said Mr. John Cabot, who waited upon us, and recommended his Manufactory to the patronage of the Government.

By September, 1791, when George Cabot wrote to Hamilton, the number of jennies had increased to nine, of from 60 to 84 spindles each (making a total of 636 spindles), and the number of looms to sixteen. These machines had cost some £658, but their replacement value was only £240, an indication of the high costs of the Beverly experiment.

RAW MATERIALS, WORKING FORCE AND PRODUCT

It is appropriate to stop and consider here the matter of the supply of raw materials, the extent of the working force, and the nature of the product of the Beverly Manufactory. In his letter to Hamilton (September 6, 1791) George Cabot states:

> We have yet had no experience of the cotton of the Southern States; but it appeared early to be essential to our interest to use cotton of the longest fibre and the best cleaned. That of Cayenne, Surinam, and Demerara, has been preferred, though at a price two or three pence higher than the cotton of the islands. In proportion as our workers are awkward and unskilful is the necessity of furnishing the best materials. Bad materials would be wasted altogether.

Moses Brown of Providence, in his letter to John Dexter, notes the same difficulty, and recommends that an effort be made to make native cotton cleaner.[13] The Beverly shipping records from May,

[13] *Industrial and Commercial Correspondence of Alexander Hamilton*, edited by Arthur H. Cole (Chicago, 1928), p. 76. The letter was dated Providence, July 22, 1791.

1787, show the importation of considerable amounts of cotton from such ports as St. Martens, St. Bartholomew, and Hispaniola for John Dyson, Brown and Thorndike, and others.[14] Beverly ships in turn occasionally carried cotton or cotton wool to Newburyport and Boston.[15] The accounts accompanying the petition of 1789 indicate that 1764 pounds of cotton, valued at £176 8*s.*(it was generally from 1*s.*6*d.* to 2 shillings per pound) had been "used in making the Goods on hand, or wasted in the Experiments of the Machines and of new Workers." Flax was used for making warps, and the accounts record "1000 skeins Linnen Yarn at 7¼, £30.4.2."

One of the arguments used by the proponents of the Manufactory was that it would furnish employment to local people. In his letter to Hamilton, George Cabot states:

> Satisfied from experience that we must at last depend on the people of the country *alone* for a solid and permanent establishment, we have for a long time directed our efforts to their instruction, so that, of the forty persons now employed in our workshop, thirty-nine are natives of the vicinity.

A factor favoring the employment of local persons over imported labor was the wage differential; Cabot continues:

> On a comparison of the prices of labor in this country with those of Great Britain, we perceived that although the wages of *common labor* is much higher here, yet that of *artificers* is not. Here the demand for labor is chiefly for agriculture, and the wages seem to be regulated by it. There the mechanic arts afford so much employment that the demand for every species of skill and ingenuity is constant and high.
>
> Hence it happens that we can satisfy our artists with wages very little above the common labor of the country, while those who come from Europe will not work without a much greater price.

The accounts for 1789 indicate an expense of £220 for "subsistence of two European Artists and their families 14 months including the Expence of removing them to Beverly." Leonard, as we shall see, appears to have left Beverly during the year 1789, but Somers continued in the employ of the Manufactory at least until 1794.

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14 Port of Beverly, Entries and imposts, 1787-1789, Beverly Historical Society. Entries numbered 19, 21, 25, 30, 52, 59, 61, 63, 66, 72, 74, and 85 indicate the importation of cotton.

15 Records of the Naval Office, Beverly, vol. vi, Manifests, 1792-1794. On June 26, 1792, the sloop *Polly* left with five bales of cotton wool for Newburyport, and on July 16, 1792, the sloop *Industry* took a bale of cotton to Boston from Brown and Thorndike, consigned for Israel Thorndike. In September, 1795, Thorndike sent 21 bales of cotton by the brig *Eliza* to Ireland for sale there.

Who were some of the native persons employed, and what were their jobs? Betsy Balch Grant reminisced in old age about her work at the mill as a girl of seventeen. She implies that she had a hundred-dollar interest in the business; this would be an interesting development, but the figures are not available to support her statement. She would be typical of the young girls whose job it probably was to run the jennies. Young boys were chosen to drive the two horses round the pit in the basement. In 1789 Peter Homan held that job; at the turn of the century, the boy was Joshua Herrick, whose father was also connected with the Manufactory. Young Herrick, who was then only seven, later removed to Maine, where he became United States Representative for the years 1843 to 1845. Reminiscing in 1863, he stated that "nine old women picked the seeds of the cotton, and the cotton was cleaned by men who laid it on a network of cod-line, and whipped it with long sticks."[16] A glimpse of another process, that of making the dye, is given in a statement of another old-timer, Abraham Caldwell. It was his father's job to turn round and round a large iron kettle, filled with indigo, water, and an iron ball weighing some sixty pounds, the whole suspended from the ceiling.[17] The superintendent, at least from 1792, was James Burnham, who came to own property adjoining the Manufactory. Although most of the workers must have been familiar with spinning and weaving in the home, the learning of the proper factory methods did not come easily. This accounts for the wastage which Cabot complains of in his letters. And no sooner was a worker trained, than there was a chance some rival enterprise would bribe him away from Beverly.

Pirating of employees as well as of machines was a common practice. In his letter to the Worcester manufacturers, Moses Brown of Providence writes:

> The beaverly people appeared highly offended at your taking the Woman from them, and say they will not again employ her if she returns, which I mention that you may improve it, as suits, having heard in Worcester she talked some of being homesick &c. But notwithstanding they propos'd not to hire her again I suppose they would be glad of her return.

Cabot indicates in his letters to Goodhue that workmen had gone from Beverly to Lebanon, Connecticut, to Providence and Greenwich, as well as to Worcester. Joshua Herrick's father is supposed to have

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[16] Bagnall, *The Textile Industries*, pp. 98-99.

[17] Letter to Robert S. Rantoul, Ipswich, Feb. 9, 1893; copy in Beverly Historical Society.

left the Beverly Manufactory for Norwich, Connecticut, in 1790, returning to Beverly in 1798. John Maguire, one of the men who went to Almy & Brown, received a recommendation from Somers and Leonard, dated May 15, 1789. A "PS" states, "You need not mention this to any person."[18] But when two of the workmen for Almy & Brown wrote to George Cabot about it, Somers and Leonard were much offended. The Beverly men's letter is so vigorous it is worth quoting in full:

> We beg to inform you that two letters have been shewn us by Mr. Cabot received from Alexander and Makerris, informing him that we had recommended Mr. Maguire to you as a weaver and advising him to take care of the spinners, likewise offering their service here as Journeymen after their time of service there is expired. We wish they were informed that we are too far out of their reach to be affected by their low insinuations, for in recommending Mr. Maguire we have acted as we shall always consider ourselves at liberty to do in recommending any industrious honest man, and they may rest assured that they never shall be employed in this factory so long as we have the direction of the works. Our letters on such business are undisguised as Mr. Cabot had been informed by us that we would recommend Mr. Maguire, but they desired Mr. Cabot to keep theirs secret.

However, Leonard himself was soon to be working for the opposition. For in the Almy & Brown papers there is a receipt from James Leonard, dated "Providence, 29th of 6th mo. called June, 1789":[19]

> Received of Moses Brown six pounds lawful silver . . . services preceding week for explaining anything in the directions which I have given him relating to cutting and singeing dying and finishing of cotton goods upon my return from New York which shall then appear to him necessary and for two cutting knives and two Guides.

Leonard may already have left the employ of the Beverly Manufactory, to go to New York, and he drops from sight at this point. But Somers stayed on, being listed in the 1790 census (as Summers, with four female dependents), and paying taxes through 1794. If Joshua Herrick's story of receiving directions from Somers as to how to drive the horses is true, he must have stayed longer than that, for Herrick was not born until 1793.

At first the chief product of the Beverly Cotton Manufactory was

[18] Moses Brown Papers, vol. vi (1787-1789), p. 69. The succeeding letter, also to Moses Brown from Somers and Leonard, is dated June 1, 1789. Joseph Alexander and James McKerries are mentioned in William R. Bagnall's *Samuel Slater*, *op. cit.*, p. 35.

[19] Moses Brown Papers (Miscellany), vol. i, p. 45.

coarse goods used for men's wear, especially corduroy. By December, 1789, stores in Salem and Beverly were advertising "corduroys from the Manufactory Warranted equal for service to any imported, and at as low prices." Felt, the Salem annalist, states in 1790, "The wear of the Beverly corduroys is already become very common."[20] The 1789 accounts indicate "1200 yards Corduroy ready to be cut and dressed at 3/6." This is what the goods were selling for in 1791, and George Cabot tells Hamilton that the cost, plus an allowance for rent and repair, just equals that. The 1790 accounts indicate that 5,000 yards of cut goods had been manufactured from May 1, 1788, to August, 1789; 1,000 yards of plain goods prior to August, 1789; 1,500 yards of corduroys since August, 1789; and 3,500 yards of plain and cut goods "lately made and well finished." On all these a loss of some £630 had been incurred, owing to high costs of manufacture and wastage. However, the quality of the goods produced was improving; whereas the early cut goods cost 4*s.* per yard and sold for 2*s.*, the later ones cost 3*s.* 8*d.* and sold for 3*s.* 6*d.* But such goods were not to be the Beverly factory's bulwark; for when the Reverend Bentley took Priestley to see the plant in November, 1794, he observed that it had changed "from the fruitless attempt to manufacture cotton velvet and unfashionable goods . . . to the profitable business of Bedticks." And in September, 1797, he could report that they were making 24,000 yards a year, priced "from one dollar to 70 cents" a yard.

EFFORTS TO OBTAIN STATE AID

We may now return to the sequence of events in the corporate history of the Manufactory. In June, 1788, the would-be incorporators presented their petition to the Legislature, asking for a charter, with such immunities and favors as would counterbalance the disadvantages and expenses peculiar to the introduction of the manufacture.[21] In addition to the persons later described as shareholders, this was signed by Nathan Dane, prominent Beverly lawyer, and by Thomas Somers and James Leonard, the two "foreign artists." The accompanying accounts show a loss to the Proprietors of £687 12*s.*, plus a loss of £240 on machines still to be made, a loss on material by the poor quality of the work of £300, and interest due amounting to

[20] Joseph Barlow Felt, *Annals of Salem* (2d ed.; Salem, 1849).

[21] Abstracted in Rantoul, but printed in Bagnall, *The Textile Industries*, pp. 91-92.

£180, making a total of £1,407 12*s*.[22] No attempt was made to figure what was due to the two managers for their services. The petition was put over until the winter session of the Legislature. Meanwhile the townspeople heard of the doings, and in the town meeting of October 27, 1788, at the request of Josiah Batchelder and others, voted:

> That their Representatives oppose all bills that shall be brought for granting to proprietors of the Cotton Mannafactury that has been lately set up in this Town any bounty or other priviledge in which this Town is to pay or bare a larger proportion thereof than the other Towns in the Commonwealth.

It should be remembered that Israel Thorndike was at that time one of the town's representatives. This vote casts some doubt on Rantoul's statement that the town excused the foremen from the payment of a poll tax, and the writer has not been able to find evidence of this. In fact, the Cotton Manufactory was not excused from taxes, and the available tax records (1791-1803) show charges against it.[23]

The winter session of the Legislature not only granted the incorporation of the mill, but also passed a separate resolve giving the shareholders eastern lands to the value of £500. The charter of February 3, 1789, grants the proprietors the right to hold real estate to the value of £10,000 and personal estate to the value of £80,000, and prescribes a seal of lead for affixing labels to their goods. Somers and Leonard were included as proprietors, but not Dane, who seems simply to have lent the weight of his name to the project. The grant of eastern lands, dated February 17, provided that they should manufacture within seven years "a quantity of cotton and cotton and linen piece-goods, of a quality usually imported into the Commonwealth, not less than fifty thousands of yards." The lands were in Township Number 7, north of Gouldsboro, and they were sold in 1792 for approximately $166.[24]

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[22] The accounts are summarized in Bagnall; but for completeness they have been printed, along with the 1790 accounts, in Appendix II to this article.

[23] The Beverly tax records are kept in Beverly City Hall. The volume containing accounts for 1787-1790 is barely decipherable. The 1791 tax on the Proprietors of the Cotton Manufactory was as follows:

	Polls	R. E.	P. E.	Total
Highway tax for 1791, Ward 9	.9.6	.9.3	.6.3	1. 5.0
Town tax for 1791	1.13.3	1.16.10	2. 3.6	5. 3.7
Commonwealth tax for 1791	.14.0	.11.1	.13.0	1.18.1
Town special tax for 1791	1.13.3	1.16.10	2. 3.6	5. 3.7
County tax for 1791	.5.10	. 5.8	. 7.6	.18.0

[24] Dane Papers, Massachusetts Historical Society.

Hoping that the national government might be even more generous than that of the state, George Cabot on March 16, 1790, forwarded a petition to Benjamin Goodhue, for him to present to Congress. On April 9 the House referred to a committee (of which Mr. Goodhue was a member) this petition, praying "the patronage of Government to their undertaking, and that an additional impost may be laid on the importation of cotton goods."[25] Nothing is further known of it, and no direct aid seems to have come from it. This failure is doubtless why the Beverly people did not reply to Moses Brown, of Providence, when he requested them, on April 19, 1791, to join with him in an appeal to Congress on behalf of the cotton manufacture. Brown tried to explain Beverly's lack of interest in his letter to John Dexter of July 22, 1791:[26]

> I apprehend this subject would have been laid before Congress by the United representation of the Cotton Manufacturers had not some states Liberaly Contributed to the promotion of it particularly the Massachusets, and the incorporate Company at Beaverly largely partaken of their bounty in proportion to what they have done, Whether under an idea that the Assistance they had received would have Enabled them to go on, which Others would be under a Necessity of discontinuing the Business as some have in fact tho't [best] to do for want of that Assistance in the same Government Viz the Factory at Worcester, or what Ever other Reasons the Beaverly company may have, they have not come forward as Expected.

Since the grant of lands was not immediately helpful, and did not promise to be so, Cabot and Fisher petitioned the state legislature in June, 1790, for further aid. Among the difficulties met with had been "the extraordinary price of Machines . . . the extraordinary loss of materials in the instruction of their servants and workmen . . . and the present want of that perfection and beauty in their goods." Expenditures had already amounted to nearly £4,000, while the value of the remaining stock was only £2,000. A committee of the House, with Nathaniel Gorham as chairman, recommended a lottery, and the House proceeded to draw up an act, authorizing a sum not exceeding £1,300, and naming Larkin Thorndike, John Cabot, and Joshua Fisher as managers. This act did not pass the Senate. Accordingly, Cabot and Fisher presented another petition, dated January 26, 1791; since this appears not to be in print, it is given in Appendix I to this

[25] *Journal of the House of Representatives*, First Congress, second session; the National Archives has located a transcript of the report (unavailable).

[26] *Correspondence of Alexander Hamilton*, *op. cit.*, pp. 77-78.

article. After showing what other countries have done to aid the manufacture of cotton, and commenting on the great advantages this country would receive from such manufactures, they state that they have had to carry on the business on a small scale, and have made only 7,000 yards of cloth the past year. The accounts, which apparently accompanied this petition, were dated August 1, 1790.[27] They show debts of £3,888 2*s*. 4*d*., including a charge of £275 for 2 3/4 years' service due to the managers, which would be at the rate of £50 per year each. Assets, with the depreciation, amounted to only £2,297 14*s*., making a deficit of £1,590 8*s*. 4*d*. Or, expressed differently, taking the real value of the assets (£2,297 14*s*.) from the costs (£3,511 14*s*. 4*d*.) leaves a loss of £1,214 0*s*. 4*d*.; Bagnall interprets this as $4,046.72.[28] The Legislature took the occasion to consider the whole question of the state of manufactures in the Commonwealth.[29] But it also decided on practical aid to the Beverly plant, voting on March 4, 1791, to grant 700 tickets in the forthcoming lotteries. In return, the proprietors were bound to continue in business for seven years, employing their present stock, and after the first of July next, an additional sum of £1,200.

The effects of this vote, together with a summary of expenses in dollars and cents, are given in George Cabot's letter to Alexander Hamilton, of September 6, 1791:

> A summary of our accounts, lately exhibited by the managers, shows our actual expenditures to have been about $14,000, against

which may be placed,—buildings, &c, worth as they cost	$3,000
Machinery and apparatus now worth	2,000
Goods and unwrought materials	4,000
Sunk in waste of materials, extraordinary cost of first machines, in maintaining learners and compensating teachers, &c	5,000
	$14,000

> It should be noticed, however, that the Legislature of Massachusetts having granted aids in land and lottery tickets, that may amount to about $4,000, the net loss to the proprietors may be estimated at only $10,000 actual money, and the interest on their advances for about two years.

These figures may well account for a loss of interest on the part of some of the proprietors; when they could make considerable profits on their shipping ventures, why should they continue to pour money into

[27] These are included in Appendix II to this article.

[28] Bagnall, *The Textile Industries*, p. 96.

[29] *Columbian Centinel*, Feb. 19, 1791.

the Cotton Manufactory? Events too came to affect the make-up of the group: Henry Higginson died in 1790, Andrew Cabot in 1791; George Cabot retired from active business in 1795. The management of the plant came to be left more and more to the superintendent; after 1794 this was James Burnham. Moses Brown, of Providence, writing to a prospective employee on October 30, 1789, cites this as one mistake which he will not make:[30]

> Thou mentions Philadelphia, Beaverly &c. These factorys are conducted by mannagers. We mean to be mannagers our selves; this is private, theirs are Societies of men that dont expect to labour and therefore employ others.

THE LATER YEARS: SUCCESS AND FAILURE

During the years 1792 and 1793 it looked as though the struggles of the Beverly Manufactory to get on its own feet might be unavailing. Governor Hancock reported to the Legislature in 1792: "The Cotton Manufactory at Beverly has received aid from the Government, but it is to be feared that it will not fully answer the public expectation."[31] Felt's Annals for 1793 repeat this gloomy note, and Henry Wansey, visiting this country in 1794, did not try to see the Manufactory; instead he wrote:[32]

> The famous cotton manufactory for fustians, corderoys, and jeans, at Beverly, in Massachusetts, of which such favorable hopes were entertained for five years past does not answer, so says Mr. C. V. of Boston, who belongs to a society for encouraging undertakings of this kind. They had a capital lent them at three per cent and workshops built for them and yet they are gone behind hand.

The reasons for this state of things, he felt, were that there was too much capital tied up in buildings and machinery, and that the care of the plant was under one workman "who has no interest in an economical management." There was some prejudice against native manufactures, and the merchants, who were importing fine East India goods, probably did little to offset it.

It soon developed that these viewers-with-alarm were not quite accurate prophets. By turning to bedticking, the Manufactory not only kept going, but was able to increase the labor force to sixty.[33]

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[30] Moses Brown Papers, 1787-1789, p. 86. Brown's prospective employee is not named.

[31] Laws and Resolves of Massachusetts, 1792-1793, p. 691.

[32] Wansey, *op. cit.*

[33] Bentley, Diary, Nov. 24, 1794, vol. ii, p. 113.

However, in January, 1798, John Cabot and Joshua Fisher, who may have acquired the interests of the other stockholders, sold the property to Samuel Blanchard, of the neighboring town of Wenham, for $2,630.29. The seven years indicated in the grant of lottery tickets were up, and this may have determined the time of sale. Thus the original proprietors withdrew, after only a little more than ten years of ownership. It is of interest that of the group only Thorndike later invested heavily in the mills founded at Waltham, Lowell, and Lawrence.[34] Joshua Herrick's father returned from Connecticut to work in the mill under the new owner. Another workman was Abraham Marland, an Englishman, who came to Beverly in 1801 to work under Colonel Burnham. He stayed two years, at seven shillings a day, and then removed to Lynnfield.[35] And in 1801 Blanchard sold a one-third interest to George S. Johonnot, of Baltimore, for $1,011.01.[36] Beverly bedticking had by then become so well-known that Manassah Cutler presented a specimen to the President of the United States on December 13, 1802.[37]

It appears that the owners of the old factory established a new one, with more modern machinery, at the head of Bass River, about the year 1802.[38] The machines, designed to be run by water, in the Ark-

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[34] Thorndike transferred his business interests to Boston in 1810. When he died, in 1832, he left an estate of a million and a half dollars. Moses Brown retired from active business in 1800; according to Stone (*op. cit.*), it was "with an ample fortune." He bequeathed $2,000 to the "theological institution at Cambridge" upon his death in 1820. George Cabot, upon his removal from Beverly to Boston, served as President of the Boston Branch of the United States Bank, Director of the Suffolk Insurance Company, and President of the Boston Marine Insurance Company. He also continued his political services until not long before his death, in 1823. John Cabot also moved away from Beverly, and died in 1821. Isaac Chapman died in Beverly in 1798. Dr. Fisher outlived the rest (he died in 1833) and bequeathed $20,000 to found the Fisher Professorship of Natural History at Harvard.

[35] *History of Essex County*, comp. by D. Hamilton Hurd (Philadelphia, 1888), vol. ii, p. 1645.

[36] Bagnall, *The Textile Industries*, p. 97.

[37] William P. and Julia P. Cutler, *Life, Journals and Correspondence of Rev. Manassah Cutler* (Cincinnati, 1888), vol. ii, p. 113.

[38] Stone, *History of Beverly*, pp. 85-86. Later there was a factory at the head of the Danvers River near Frost Fish Brook. This may have been the "steam factory," which Stone states was incorporated in 1841. On a manuscript map of the area, drawn about 1850, it is called the "iron factory." These rivers are tidal in nature.

wright pattern, were constructed by John Clark of Paterson, New Jersey. Moses Brown, of Providence, writing to the owners of a Cumberland Cotton Mill on February 22, 1802, refers to "a new mill at Beverly now just ready to go, the owners of which used to be the greatest Customers to the mill owners here." This would indicate that Brown sold goods, possibly for further finishing, in the Beverly area, and it is known that he had outlets there. The Embargo of 1807, however, hastened the end of both plants. When on March 1, 1813, Johonnot, then of Salem, came to reconvey his interest in the Manufactory to Blanchard for $333.33, the wording of the deed indicates that the business had ceased. The old factory building was used as a school during and just after the War of 1812. On October 13, 1828, the buildings caught fire from sparks from the tavern chimney and burned.[39] Some of the bricks were afterwards used in the construction of a church at Beverly Farms; only a slate plaque now marks the site. Thus came to an end the institution for which such high hopes were held at its birth in 1787; it had seen some twenty years of reasonably successful operation, followed by twenty years of inactivity. Hampered by inadequate machinery, absentee management, and lack of capital, it remained outside the main line of factory development in this country, and it could not compete with the factories growing up in Rhode Island, and with those soon to be established in Massachusetts. But because of the pioneering nature of the Beverly Cotton Manufactory, the interest in it will always be greater than its material success would indicate.

The Question of Firsts

The determination of which cotton mill was first in this country depends upon such factors as the nature of the machinery, what power was used, how successful it was, and similar matters. One writer states that it is impossible to say which was the first cotton mill "unless the question is coupled with a definition as to what constitutes a cotton mill, for the early fabrication of cotton goods was an essentially household industry to be classed with other domestic duties."[40] The Beverly manufacturers themselves qualified things when, in the letter to Goodhue, Cabot states:

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[39] *Essex Register*, Oct. 16, 1828.

[40] Dr. C. J. H. Woodbury, "Development of Textile Mill Design," *American Wool and Cotton Reporter*, Jan. 6, 1910, p. 24.

> You may recollect that we engaged in this undertaking in October, 1787. Whether the Philadelphians had then begun, we are unable to say. We did not know of their doing anything until the spring following; but, be this as it may, we believe that we are the only persons who, at *private* expense, have prosecuted the business to any effect. In Philadelphia, it has been supported by an extensive contribution, and by the aid of their state government, and yet it is trifling compared with it here.

And in the petition of 1791 they state:

> Within a few years past this manufacture has been attempted by enterprising persons, in various parts of the United States; but except at Beverly, your Petitioners believe it has been abandoned in all of them, as soon as they had advanced far enough to be sensible of the difficulties they must encounter.

Moses Brown's famous letter to the Beverly Proprietors, dated April 19, 1791, in which he says, "and it is the desire of those concerned this way that you, being the first and largest, would take the lead and devise such plans as may be most eligible" simply reflects the state of his knowledge at the time. He knew that the Beverly mill started before his own activities in Pawtucket, but of doings in South Carolina and Philadelphia he may not have known.[41]

Most of the early writers on the subject, unless they had some particular axe to grind, gave Beverly the credit of being the earliest mill; they include White,[42] Batchelder,[43] Rich,[44] and of course, Rantoul. Later writers have suggested other title holders, Bagnall[45] and Clark[46] supporting Philadelphia, and Kohn,[47] South Carolina. It is reported that Samuel Wetherill's workmen began to weave in Philadelphia on April 12, 1788, and had made a respectable amount of cloth by August 23, 1788. The Legislature granted aid on March 26, 1789, and the

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[41] It is of interest that a Beverly boy, Thomas P. Ives, went to work for the Browns, married the daughter of Nicholas, and in 1792 became a partner of Brown Benson & Ives. See James B. Hedges, *The Browns of Providence Plantations* (Cambridge, Mass., 1952), p. 20.

[42] George S. White, *Memoir of Samuel Slater* (2d ed.; Philadelphia, 1836), pp. 52-54.

[43] Batchelder, *op. cit.*

[44] George Rich, "The Cotton Industry in New England," *New England Illustrated Magazine*, Oct., 1890, vol. iii, pp. 167-191.

[45] Bagnall, *The Textile Industries.*

[46] Victor S. Clark, *History of Manufactures in the United States, 1607-1860* (Washington, 1916).

[47] August Kohn, *The Cotton Mills of South Carolina*, reprinted from *The News and Courier* (Charleston, 1907).

mill burned on March 24, 1790. A Mrs. Ramage is supposed to have manufactured cotton on James Island in South Carolina in 1787, but the earliest proof is a reference to the *City Gazette and Daily Advertiser*, Charleston, January 24, 1789. One writer on South Carolina confuses the two early New England mills nicely by writing that ". . . Slater became the putative father of American cotton manufacturing by erecting his mill at Beverly, Mass."![48] This illustrates the difficulties one can get into over the question of firsts. Perhaps the most that one can say, until further evidence is uncovered, is that the Beverly Cotton Manufactory was the earliest to manufacture cloth, at private expense, by means of power-driven machines. Its mill was certainly the first one of any size or consequence to last over a period of years. This leaves for Slater the glory of perfecting the Arkwright machines for use by water power in this country. But the Beverly company has glory enough, even though it was ultimately unsuccessful; for through its failures others learned how to avoid making the same mistakes. It is remarkable that in that time and in that place it flourished as long and as successfully as it did.

Epilogue

The Beverly Historical Society has a small collection relating to the Manufactory: copies of deeds and documents, a strand of yarn, and samples of cloth. One interesting item is a modern representation of how the place must have looked at the time of Washington's visit. This was certainly the Manufactory's—and the town's—red-letter day. The President took breakfast with his friend, George Cabot, at his home on Main Street. Then he rode in company the two miles to the tavern and the Manufactory. What a bustle there must have been as housewives joined with workers to honor him! There was someone to present him with flowers, someone else to offer him a glass of water from the well. How excited the girls must have been, all in their best clothes, at their machines! And how pleased the President at this new evidence of the country's self-sufficiency. On this happy note we leave the Beverly Cotton Manufactory.

Robert W. Lovett
Harvard University

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[48] David D. Wallace, *History of South Carolina* (New York, 1934), vol. 2, p. 408.

APPENDIX I

Petition of John Cabot and Joshua Fisher to the Massachusetts Legislature, January 26, 1791[49]

The Honourable the Senate and the Honourable the House of Representatives of the Commonwealth of Massachusetts Assembled at Boston

Humbly shew the Proprietors of the Beverly Cotton Manufactory:—

That your Petitioners having repeatedly solicited the attention of Government to the object for which they were incorporated,—should think some apology necessary for this renewed application, were it not fully justified by the importance of the undertaking, as it respects the public, and the urgency of the occasion, as it respects themselves. Although the great Utility of Manufactures to our Country be generally acknowledged, yet your Petitioners apprehend very few persons have had an oppertunity of making those investigations that are necessary to discover the superiour advantages of that of Cotton to almost any other that can be established; but instead of a detail of those advantages, which might be too prolix, they hope it may not be thought impertinent to notice the great importance of the manufacture to some other Nations, and the High rank it holds in their estimation.

In England by means of public encouragement it has risen to such a point of prosperity that the material, consisting of about thirty millions of pounds of Cotton worth only two millions, furnishes employment and maintenance to nearly five hundred thousand people and produces a Capital of not less than twelve millions sterling.—

In France it has had the uniform patronage of Government for about fifty years, and altho' its growth has been retarded, thro all that period, by the powerful competition of the English; yet it has now acquired so firm and respected a footing, as to be a source of subsistence to many thousands of her Citizens, and furnishes a valuable export in several branches of her Commerce.

In Ireland the Parliament have granted a bounty of five Per Cent on all Cotton Goods manufactured within the Kingdom, and have given nearly an hundred thousand pounds in gratitude to the first undertakers by way of compensation for their extraordinary disadvantages; yet notwithstanding this liberal aid of Government it is a fact that some of the first adventurers have sunk large Fortunes in bringing the business to perfection.

But the experience of all Countries shews the extreme difficulty of bringing this complicated Manufacture to maturity, that it is too delicate to sustain itself in its infancy, and therefore requires the fostering hand of Government to cherish it.

Within a few years past this Manufacture has been attempted by enterprising persons, in various parts of the United States; but except at Beverly, your Petitioners believe it has been abandoned in all of them, as soon as they had advanced far enough to be sensible of the difficulties they must encounter. — That your Petitioners have not been discouraged as much as others is not because they have

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[49] Docket file, Chapter 96, Resolves of 1790, Massachusetts State Archives. So far as the writer can ascertain, this has not been printed or referred to in the accounts of the Manufactory.

encountered fewer difficulties, or suffered less loss; on the contrary as their progress has been greater, they have met with more of both; but, they have unremittingly pursued the object relying upon Government for such assistance as it should appear to deserve and require.

Your Petitioners have conceived that the Community were not, and could not be willing to lose so valuable an art when it might be secured at an expence, comparatively, so trifling. The Honourable the Legislature have favoured this idea, and many of their respected members, while they have regreted the want of present means, have strongly testified their disposition to aid them, and have earnestly requested your Petitioners to persevere, assuring them that the aid of Government could not be with held whenever the State of the Manufactory should be such as to merit it — that such has been for some time the State of the Manufactory, no Gentleman has the least doubt who has lately had an oppertunity of visiting, and forming a judgment from his own observations; — we lament that every Gentleman in the Legislature has not had this oppertunity. Your Petitioners have proved by experience, that many of the most difficult kinds of Goods may be fabricated here of a quality in all respects, equal to those imported, and excluding the great expence peculiar to the introduction of the Business, it may be demonstrated, by calculations founded on the same experience, that they may be afforded as cheap; and as the most unequivocal proof they can give of their reliance on this fact, they are willing to risque their property and their labour upon the issue. — How far this Manufacture may be finally extended in this Country will depend on circumstances, all of which cannot now be ascertained; but considering its present situation, and the consumption of those Goods in these States, there is no room to doubt that eight or ten thousand persons, and a Capital of two hundred thousand pounds, might be immediately employed in it with great advantage. An object this nearly equal, in amount, to the Cod Fishery! and capable of being indefinitely extended.

With these ideas to have abandoned the undertaking, sacrifising the greater part of the Stock, and disappointing the public expectation, would have been inexcusable—on the other hand, to have continued those expensive exertions, necessary to bring it to that point of perfection; and place it on that solid and respectable footing which the public interest requires, without some effectual aid from Government, must have greatly impoverished the principal proprietors, and exposed them to eventual ruin.

For a year past therefore your Petitioners have pursued a mean course—they have continued the business on a small scale, and have made only 7000 Yards of Cloth: on this Scale they unavoidably suffer a considerable loss. More than three years assidious labour and fifteen thousand dollars in money have already been devoted by us to the transplanting into our Country this invaluable Art. We have acquired the Seeds.—We have formed an extensive nursery that begins to shew its fruit—should it now be left to perish the expence of it must be our loss; but our regret will be augmented by the consideration that the Community must loose the benefit of its productions, which by due cultivations, would be a thousand fold.

These facts and observations, with the utmost deference and respect, your Petitioners beg leave to submit to the consideration of the Honourable the Legis-

lature in full assurance that they in their wisdom will do in the premises what Justice and the public good may require.

In behalf of the Proprietors

s/ John Cabot — Managers of the Cotton
s/ Joshua Fisher — Manufactory

Beverly January 26 1791—

In Senate February 4 1791 Read and Committed to Stephen Choate and Phanuel Bishop Esqr with such as the Honourable House may join, to consider and report.

Send down for concurrence

Samuel Phillips President

In the House of Representatives February 5 1791

Read and concurred and Mr Tyler Mr Mason and Mr Raymond are joined.

David Cobb Speaker

APPENDIX II

ACCOUNTS ACCOMPANYING THE PRECEDING PETITION[50]

Dr	£ s p
To sundry assessments paid Manager	3000.00.0
Due G. Cabot on note	218.00.0
Due to sundry persons on account	190.12.0
	3408.12.0
1 years Interest on account of advances	204.10.4
2 3/4 years Service due to the Managers	275.00.0
	3888. 2.4
	2297.14.0
	1590. 8.4

Aug 1 1790 — J. Cabot, Jos. Fisher — Managers

Cr	
By 5000 yards cut Goods manufactured from May 1, 1788 to August, 1789 cost of which as appears by our books 4/per yard is 1000.0.0 the same estimated 2/per yard	500.0.0
By 1000 yards plain Goods made prior to August, 1789 the cost being 2/6 per yard—125.0.0 Estimated and part sold at 1/6 per yard	75.0.0
By 1500 yards Corduroys manufactured since August, 1789 which cost 3/4 per yard—250.0.0 which are now estimated 2/8 per yard	200.0.0
By 3500 yards plain and cut cotton goods cost 3/8 per yard—lately made and well finished 641.13.4	
By the same estimated at 3/6 per yard the supposed value	612.10.0
	1387.10.0

[50] These accounts are summarized in Bagnall, *The Textile Industries*, but they seem not to have been printed completely.

Original cost of Manufactory House 700	
Value of same	600.0.0
Dye House and appertenances cost 100	
By the value of the same estimated	70.0.0
Carding machine cost 400	
Value	40.0.0
A new one of a better construction made in this town would cost only 60	
16 looms with reeds cost 64—	
By the value of same	48.0.0
10 spinning frames containing 636 spindles 6/per spindle 190.16	
By value of same 4/each	127.4.0
Sundry small machines,. knives etc—40—	
By value of same estimated	35.0.0
Value of house and machines	910.4.0
Value of Goods brot from above	1387.10.0
	2297.14.0

ACCOUNTS ACCOMPANYING THE PETITION FINALLY ACTED UPON IN JANUARY, 1789[51]

Dr	
To cost of Manufactory House and Land	£850
To cost of Dying House and Utensils	150
Expended on the Carding Machine to bring it to its present state	284
Expended on the first Jenny to perfect it including the original cost	93
Cost of the second Jenny	27.10
Cost of the two last Jennys each £15	30
Sundry small Machines for Winding etc.	18
Cost of the first Loom with Aparatus	18.10
Cost of 10 Looms since the first	30
Subsistence of two European Artists and their families 14 months including the expence of removing them to Beverly	220
1764 lbs. Cotton used in making the Goods on hand, or wasted in the Experiments of the Machines and of new Workers at 2/	1768
1000 Skeins Linnen Yarn at 7¼	30. 4.2
paid for Labour on 1200 yards corduroy now in a state fit for cutting at 2/	120
Expence of a new covering of the carding machine to be paid immediately, the present Cards being totally unsuitable	20
	£2062.12.2
Cr	
By value of the House and Land	850

[51] These accounts are summarized in several histories of the Manufactory, but seem not to have been printed in full. A manuscript copy is in the Beverly Historical Society.

By Dying House and Utensils	150
Carding Machine with the new covering of cards at the price for which it may now be made	60
4 Jennys at the price at which they can now be made at £15	60
Sundry small machines at the price they can now be made	12
11 Looms at the present price with their Apparatus at 60/	33
1200 yards Corduroy ready to be cut and dressed at 3/6	210
	1375
Loss to the Proprietors to the present day	687.12.2
Total	2062.12.2
There is now wanted a Calendar of Wood and Iron of 17 Rollers—will cost to make without a model at least	180
A Dressing Stove Plates and Other Apparatus for finishing	130
Cutting Frames Knives and Warping Mills	70
Presses with double setts of Iron Screws Plates and Beds	60
	440
All these articles may be made after the first for	200
So there must be a Loss on them of	240
	440
Lost by Proprietors to the present day	687.12
Will be lost on sundry machines still to be made at least	240
Loss on Materials by the badness of the work performed. Nine tenths of it by new hands before anything can be accomplished will amount at least to	300
Interest on the whole Capital before any income is derived say 18 months	180
	1407.12

To the above add services of two Persons for managing whose whole time is devoted to the Business.

And if either of the Artists fail in perfecting the work they have undertaken, the expence of procuring others from Europe will amount to two or three hundred pounds more—and after all the risque of entire failure in the business must be borne by the Proprietors, and in that case all the Buildings as well as the Machines will be worth little or nothing and there cannot be a saving of five hundred pounds in the whole.

EDITOR'S COLUMN

The articles in the present issue of the Bulletin have one common interest, the promotion and development of new business concerns in America. Alike in that they deal more or less with beginnings, these articles are, however, concerned with men and efforts in different times, places, and circumstances. The writers present facts, leaving it to the readers to draw from those facts whatever they "moral" may.

Throughout the history of American business in the past century or more—as indeed throughout business in other countries and times—run two threads of company promotion: (1) the type which establishes new business concerns for the sake of deriving profits from operations and (2) that which looks to gains from promotion, alone, a promotion that often manipulates or misrepresents values in order to make large immediate profits.

Promotion of companies for the exploitation of mineral resources was especially likely to be of the second type, both in the United States and in many of the countries in Latin America. Mexico, rich in mineral resources, some of which lay unknown or unworked in the underground recesses of mountain and plain, was a promising field for such efforts for many years from late in the nineteenth century. And copper, then rapidly finding new and increased industrial uses, was a favored metal for the mining company promoter (as oil came to be in Mexico a few years later).

In "Colonel William C. Greene and the Cananea Copper Bubble," Dr. Marvin D. Bernstein draws a picture of a promoter who epitomizes the more extreme of the second type of business promoter. (Unfortunately, the author has not had available for his use primary records of Greene's operations, but he has used a wide range of contemporary printed materials.) So successful were Greene's promotions that he decided to keep control, himself, of his mine and auxiliary developments. That decision proved his undoing. As far as the Cananea enterprise was concerned, although its promoter failed, under better management it "became a sturdy member of the fraternity of great copper mines."

Miss Lucile Kane in "Hersey, Staples and Company, 1854-1860: Eastern Managers and Capital in Frontier Business," deals with

business beginnings on the American frontier. She shows how a small group of Easterners applied Eastern management and capital in establishing a successful lumber company in the white pine forests of the Upper Mississippi River.

In "The Shelby Iron Works Collection in the University of Alabama Library," Professor James F. Doster calls attention to an important and remarkably complete collection of records of an Alabama iron company. This collection provides an unusual opportunity for writing a valuable full-length history of a southern industrial concern. Such a history would not only contribute to our information about the development of a great American industry, but it should, especially, enrich our knowledge of the beginnings and growth of indigenous manufacture in the South, to which subject historians have given far too little attention.

In "The Beverly Cotton Manufactury: or Some New Light on an Early Cotton Mill," Mr. Robert W. Lovett adds new information to that already known about one of the earliest if not indeed *the* earliest efforts in this country "to manufacture cloth, at private expense, by means of power-driven machines." Why did failure end this concern which, when a proud host to Washington in 1789, was a fully integrated textile mill with several spinning jennies, a dozen looms, and a dye house?

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The Secretary of the Business Historical Society announces that the Society plans to offer as its first book presentation for 1953 the newly published history of Winchester Arms. This book, entitled *Winchester: The Gun that Won the West* was written by Professor Harold F. Williamson of Northwestern University, a member of the Council of the Business Historical Society. The book is being published by the Combat Forces Press, Association of the United States Army, Washington, D. C. It is profusely illustrated and should be of especial interest to gun collectors and historians of our Western frontier as well as to those interested in the history of business.

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A joint meeting of the Business Historical Society and the American Historical Association will be held at the annual conference of the latter in Washington, D. C., in December. The meeting is scheduled to be held at ten o'clock on December 28 at the Mayflower Hotel. The program is as follows:

Chairman:	Dr. Fritz Redlich
Subject:	*The History of Long-term Debt Financing in the United States.*
Papers:	*Administrative Problems of the J. B. Watkins Land Mortgage Company, 1873-1894*, by Dr. Allan G. Bogue. *Investment Banking since 1900: An Unexplored Field in American Financial History*, by Dr. Thomas R. Navin.
Discussants:	Dr. Muriel E. Hidy Dr. Margaret G. Myers

The Sheraton Group will have its meeting at 4:30 on the same day, December 28.

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Mr. Robert W. Lovett of the Manuscript Division of Baker Library of the Harvard Business School has contributed the following note on matters of interest to business historians in connection with the recent meeting of the Society of American Archivists:

The Society of American Archivists held its annual meeting at Lexington, Kentucky, on October 27 and 28. Some one hundred and twenty persons attended, including custodians of state and national archives, of local and regional manuscript collections, of university and business archives, and many others. Several sessions were devoted to a consideration of business records. Professor Thomas D. Clark, of the University of Kentucky, prepared a paper for a luncheon meeting, describing research values to be found in collections relating to banking, transportation, and storekeeping, which he has brought together and studied. Emmett J. Leahy, of the National Records Management Council, presided at a session devoted to business records. Reports on their collections were given by Henry E. Edmunds, Archivist, The Ford Motor Co., and by Herbert A. Kellar, custodian of the McCormick Historical Collection, now at the Wisconsin Historical Society. A report was made of progress in planning for a national register of manuscript collections, to be located at the Library of Congress. It is expected that a statement of the purposes of the Sheraton Group will be published in the News Notes section of the January issue of the *American Archivist*. This is so that members of the Society, many of whom have business records in their custody, will know of the formation of the Sheraton Group.

ACKNOWLEDGMENTS

The Society wishes to acknowledge receipt of the following material during the current year:

From American Optical Company, Southbridge, Massachusetts: *Annual Report for 1951.*

From American Petroleum Institute, New York City: *Quarterly,* Winter, 1951-52, Spring, Summer, Autumn, 1952; *American Petroleum Institute Directory, 1952; Proceedings,* Thirty-first Annual Meeting: Section I, *General Sessions;* Section II, *Marketing;* Section V, *Transportation; Proceedings,* Seventeenth Mid-year Meeting, Division of Refining, *Refining; American Petroleum Institute—What it is, What it does; Security for our Oil Age.*

From Davison Publishing Company, Ridgewood, New Jersey: *Davison's Rayon and Silk Trades, 1952; Davison's Textile Blue Book, July, 1952.*

From Georgia Historical Society, Savannah: *The Georgia Historical Quarterly,* currently.

From Historical Society of Western Pennsylvania, Pittsburgh: *Western Pennsylvania Historical Magazine,* currently.

From National Archives, Washington, D. C.: *National Archives Accessions,* No. 47, No. 49; *Annual Report on the National Archives and Records Service, June 30, 1951; Preliminary Inventories,* Nos. 41, 42, 43.

From National Provisioner, Chicago, Illinois: *The National Provisioner,* weekly issues and convention issues: *The "Significant Sixty"—A Historical Report on the Progress and Development of the Meat Packing Industry, 1891-1951.*

From Oregon Historical Society, Portland: *Oregon Historical Quarterly* currently.

From Philosophical Society of Texas, Dallas: *Proceedings,* for 1951.

From Rhode Island Historical Society, Providence: *Rhode Island History,* currently.

From Southern Pine Association, New Orleans, Louisiana: *Weekly Trade Barometer and Supplement,* currently.

From State Historical Society of Missouri, Columbia: *Missouri Historical Review,* quarterly.

From State Street Trust Company, Boston, Massachusetts: *Yankee Ship Sailing Cards,* Vol. 3.

From Texas State Historical Association, Austin: *Southwestern Historical Quarterly*, currently; *Fifty-sixth Annual Meeting*, April 25 and 26, 1952.

From University of Illinois, Urbana: *Bulletin*, No. 73, "The Progressive Mine Workers of America: A Study in Rival Unionism," by Harriet D. Hudson.

From University of Oregon, Eugene: *Oregon Business Review*, currently.

From University of Washington, Seattle: *Pacific Northwest Quarterly*, currently.

From William and Mary College, Williamsburg, Virginia: *William and Mary College Quarterly*, currently.

From Wyoming State Department of History, Cheyenne: *Wyoming Annals*, currently.

FOREIGN

From Biblioteca Nacional, Buenos Aires, Argentina: *Editorial Sudamericana S. A.*, No. 5; "Boletin de Novedades," March-April, 1952, July, 1952.

From Ministerio de Salud Publica y Asistencia Social La Plata, Argentina: *Memoria*, May, 1951; "Difteria," by J. E. Herran and A. Manzulio; "Homenaje del Institute Biologico," Dr. Tomas Peron.

From Bank of New South Wales, Sydney, Australia: *Annual Report and Balance Sheet for the Year Ended 30th September, 1951; Review*, currently.

From Commonwealth Bank of Australia, Sydney: *Report and Balance Sheets 30th June, 1951.*

From The Economic Society of Australia in New Zealand, Melbourne University Press, Victoria: *The Economic Record*, June, 1951.

From National Council of Wool Selling Brokers, Melbourne, Australia: *Annual Statistical Graph*, 1950-1951.

From Victorian Railways Commissioners, Victoria, Australia: *Annual Report, 1951.*

From Banque Nationale de Belgique, Brussels, Belgium: *Bulletin d'Information et de Documentation*, currently.

From Rio Grande do Sul Porto Alegre, Brazil: *Revista*, 1949.

From Bank of Toronto, Toronto, Canada: *Ninety-sixth Annual Report*, November 30, 1951.

From Imperial Bank of Canada, Toronto: *77th Annual Report Presented to the Shareholders, November 28, 1951.*

From Royal Bank of Canada, Montreal: *Monthly Report*, currently.

From Banco Central de Chile, Santiago, Chile: *Boletin Mensual*, currently.

From De Javasche Bank, Dutch East Indies, Batavia, Java: *Report of the Java Bank, 1950-1951.*

From Land Bank of Egypt, Alexandria: *46e Exercice (1951).*

From Banque Belge et Internationale en Egypte, Cairo: *Rapport du Conseil d'Administration sur le Vingt-deuxieme Exercice Social (1950-1951).*

From Nottingham Chamber of Commerce, Inc., Nottingham, England: *Journal*, currently.

From Royal Economic Society, London, England: *The Economic Journal*, quarterly.

From Bank of Finland, Helsinki: *Monthly Bulletin*, currently: *Bank of Finland, 1951, Year Book; Report of the Bank of Finland for the Year 1951.*

From Nordiska Föreningsbanken, Helsinki, Finland: *Ninetieth Annual Report, 1951; Unitas*, quarterly.

From Suomen Osuuskauppojen Keskuskunta R. L., Helsinki, Finland: *Annual Report, 47th Year of Business, 1951; Report of the Board of Directors for the 34th Year of Activity, 1951.*

From Industrie-und Handelskammer Bremen, Bremen, Germany: *Bericht*, for 1951.

From Bank of Athens, Athens, Greece: *Greece To-Day*, currently.

From Institute of Bankers in Ireland, Dublin, Ireland: *Journal*, quarterly.

From The Hitotsubashi Academy, Tokyo, Japan: *The Annals*, October, 1951, April, 1952.

From Boletin Cultural Mexicano, México, D. F., México: *Mexican Cultural Bulletin*, currently.

From Boletin Mensual de la Universidad de Nuevo León, Monterrey, N. L., México: *Armes y Letras*, currently.

From Departamento Autonomo de Prensa y Publicidad, México, D. F., México: *Revista de Estadistica*, currently.

From Amsterdamsche Bank, N. V., Amsterdam, Netherlands: *Quarterly Review*, currently.

From De Twentsche Bank, N. V., Amsterdam, Netherlands: *Condensed Statement*, currently; *Annual Report for 1951.*

From Rotterdamsche Bankvereeniging, Amsterdam, Netherlands: *Rayon in Western Europe—The Dutch Balance of Trade; Oil: Dynamic Expansion* (Holland's Foreign Exchange System); *Wool . . . and the Textile Crisis: Business Conditions in Holland.*

From Den Norske Creditbank, Oslo, Norway: *Condensed Statement of Condition,* June 30, 1952.

From Aktiebolaget Svenska Handelsbanken, Stockholm, Sweden: *Annual Report, Economic Survey, 1951; Index,* currently.

From Stockholms Frihamnsaktiebolag, Stockholm, Sweden: *Stockholms Frihamnsaktiebolag, 1951.*

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